MANAGEMENT PLAN DRAFT FINAL AND MEMORANDUM OF AGREEMENT FOR HISTORIC MINING PROPERTIES

NORTH FORK JOHN DAY RANGER DISTRICT, UMATILLA NATIONAL FOREST AND LONG CREEK RANGER DISTRICT, MALHEUR NATIONAL FOREST

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PREPARED FOR

United States Forest Service
North Fork John Day Ranger District, Umatilla National Forest
Long Creek Ranger District, Malheur National Forest

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Introduction

The four Ranger Districts of the 1.4 million acre Umatilla National Forest are managed by the Forest Supervisor in Pendleton, Oregon. The districts are the Hepner Ranger District (Hepner, Oregon), the North Fork John Day Ranger District (Ukiah, Oregon), the Pomeroy Ranger District (Pomeroy, Washington) and the Walla Walla Ranger District (Walla Walla, Washington). The Umatilla National Forest was established in 1908 from parts of the Blue Mountain and Heppner Forest Reserves. In 1920 the Wenaha National Forest was transferred to the Umatilla National Forest. The Forest encompasses large parts of the Blue Mountains of eastern Oregon and covers 9 counties in Oregon and Washington. The Oregon counties in the Umatilla National Forest are: Umatilla , Union, Wallowa, Morrow, Grant and Wheeler. Columbia, Garfield and Asotin counties are in Washington.

The Malheur National Forest is headquartered in John Day, Oregon. Malheur National Forest is composed of 1,460,000 acres in the Blue Mountains of eastern Oregon. The Forest is named for the Malheur River. The Prairie City Ranger District is headquartered in Prairie City, Oregon. The Long Creek Ranger District is headquartered in John Day, Oregon and the Burns Ranger District is headquartered in Hines, Oregon. The headwaters of the Silvies, Malheur and John Day Rivers are formed in Malheur National Forest. The forest was reserved in 1908 and is primarily in Baker, Grant and Harney counties, Oregon.

Historic mining sites and sites associated with early historic development present a challenge to cultural resource managers. This Historic Preservation Plan guides the management of historic mining resources located in the North Fork John Day Ranger District, Umatilla National Forest and the Long Creek Ranger District, Malheur National Forest. The Plan provides the information necessary to ask the appropriate questions of the sites and thus the Plan facilitates the connection between the physical remains and the broad patterns of the past. The document may be used by other Ranger Districts that share the same history, although the site specific information will not be applicable.

This management plan covers historic mining sites management. Inventory, assessment of National Register eligibility, assessment of effect, mitigation, consultation with interested parties such as local historical societies (as applicable) and data management procedures are included in the plan. Investigations into the development of mining and its support network, including agriculture and transportation, provide information useful in understanding the social and economic development of the area. This allows the history of local mining to be placed within a broader perspective and facilitates more comprehensive resource evaluations. Donald Hardesty in *Evaluating Site Significance in Historical Mining Districts* (1990) stated:

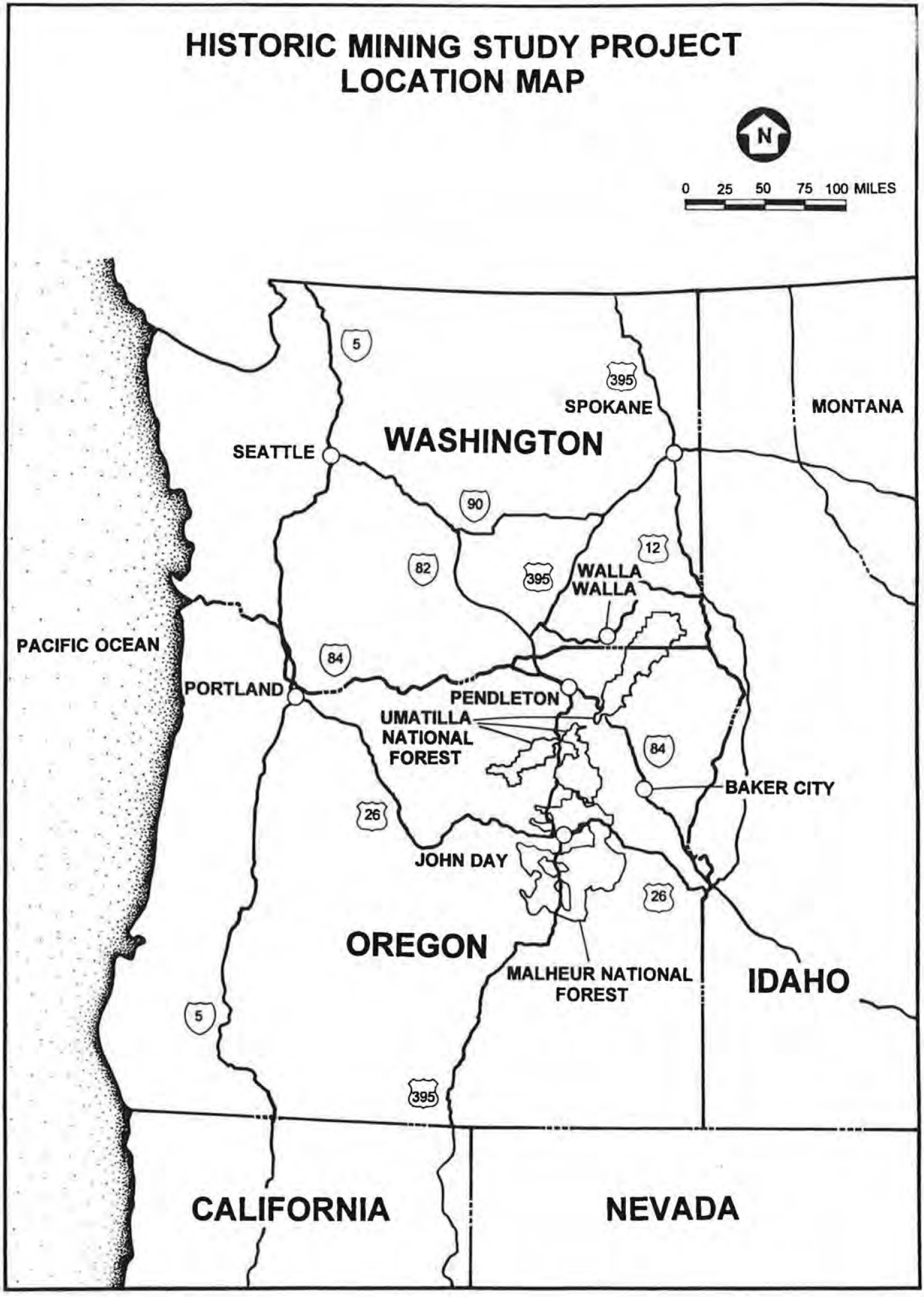
> The greatest skepticism from public land managers and mine owners about the need for protecting mining sites has revolved around just this kind [trivial and vague] of evaluation.

> In general, the reason for the skepticism is the absence of a uniform and agreed upon research design for evaluating the information potential of mining sites, making significance assessment an *ad hoc* and rather random activity. Related to this is the practice of using either trivial or vague research questions (Hardesty 1986:61-62). Trivial questions are not clearly related to key or dominant significance issues . . . For example, research questions that include such things as the "reconstruction" of food practices, houses, industrial technologies, or environments are trivial unless they are put into a broader scientific and scholarly framework that establishes their local, state, or national significance . . . . Historical themes are usually identified that suggest what kind of cultural resources are in the area and which ones are likely to be most important, but the "leap" from such implicit to specific evaluation criteria is seldom made. Here, the problem is the absence of adequate "middle range" concepts and principles to link general research questions to archaeological data.

The development of the historic context and research design allows for understanding the development of the region and for properly placing the history of local mining into a broader perspective. Evaluation of significance using any criteria, however, requires an adequate historical background and research design for asking questions. The research design is composed of several key elements. The structure of inquiry defines the key research questions. Archaeological data requirements that may answer each of the key questions are detailed and information on assessment of the site potential for meeting the data requirements is included. Consequently, comprehensive evaluations of resources under National Register of Historic Places (NRHP) Criteria a, b, c and d can be made at the appropriate level of significance. Criterion d states that an historical property is eligible for listing on the NRHP if it has or is likely to yield information important in history or prehistory. This criterion is often used by archaeologists to evaluate the significance of mining sites.

The cultural resource inventory, recordation and significance decisions are integral parts of National Register of Historic Places (NRHP) assessment. Resources have been evaluated individually. However, these observable and isolated features may be part of a much larger complex that originated from the same activity. By using a fragmentary method of significance assessment, linkages to previous systems of interaction may have been lost.

This plan contains several sections. Section 1 details legislation relating to cultural resource management. Section 2 provides an historic context to describe the area. Section 3 contains property types and registration requirements. Section 4 contains the research design and guidelines for evaluation of individual mining properties and districts. Section 5 includes a draft Memorandum of Agreement with the Oregon SHPO and the Advisory Council on Historic Preservation. An extensive bibliography follows Section 5.


HISTORIC MINING STUDY PROJECT
LOCATION MAP
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MONTANA
WASHINGTON
SEATTLE
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82
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WALLA
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84
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UMATILLA
NATIONAL
FOREST
84
BAKER CITY
26
JOHN DAY
26
OREGON
MALHEUR NATIONAL
FOREST
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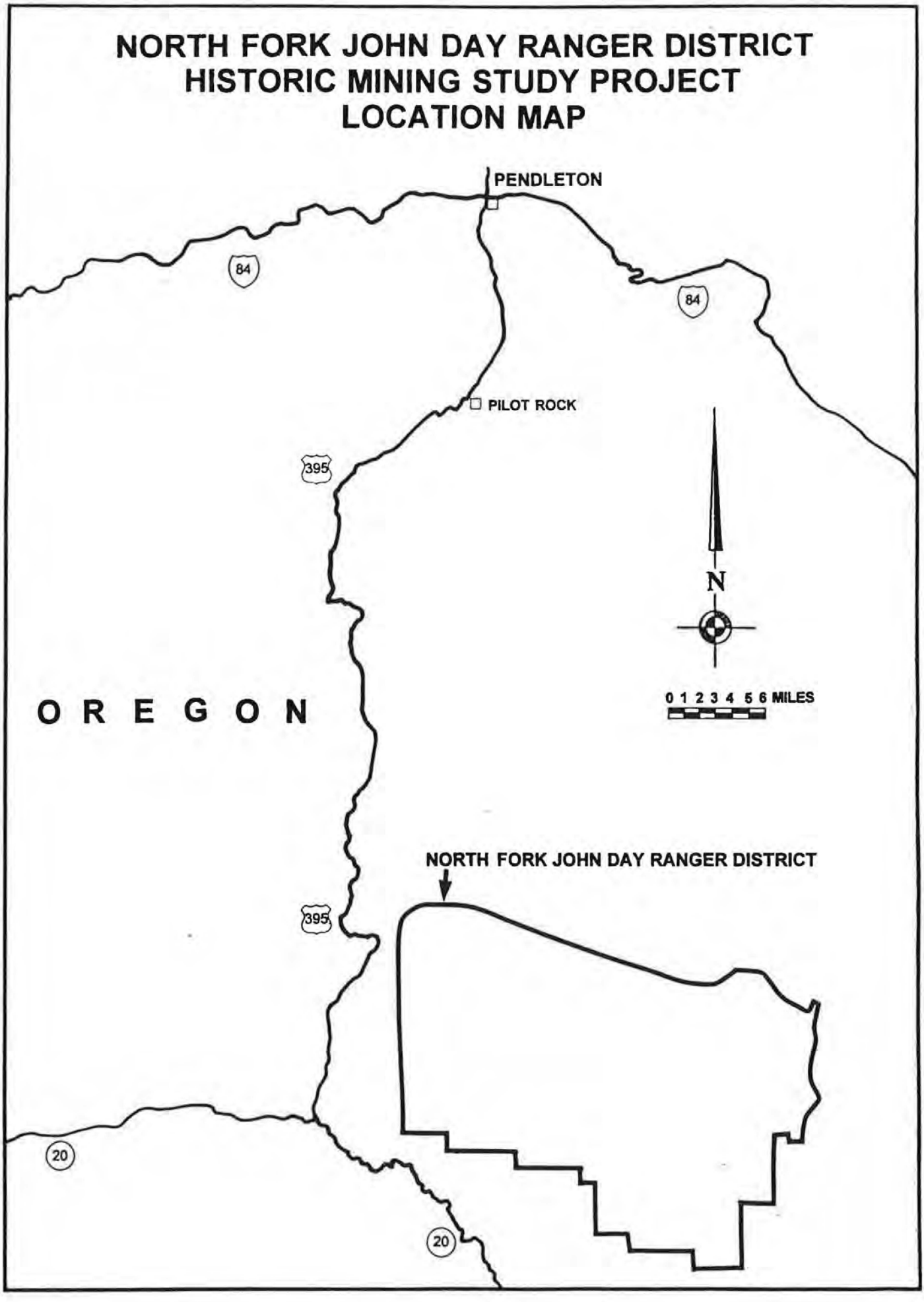
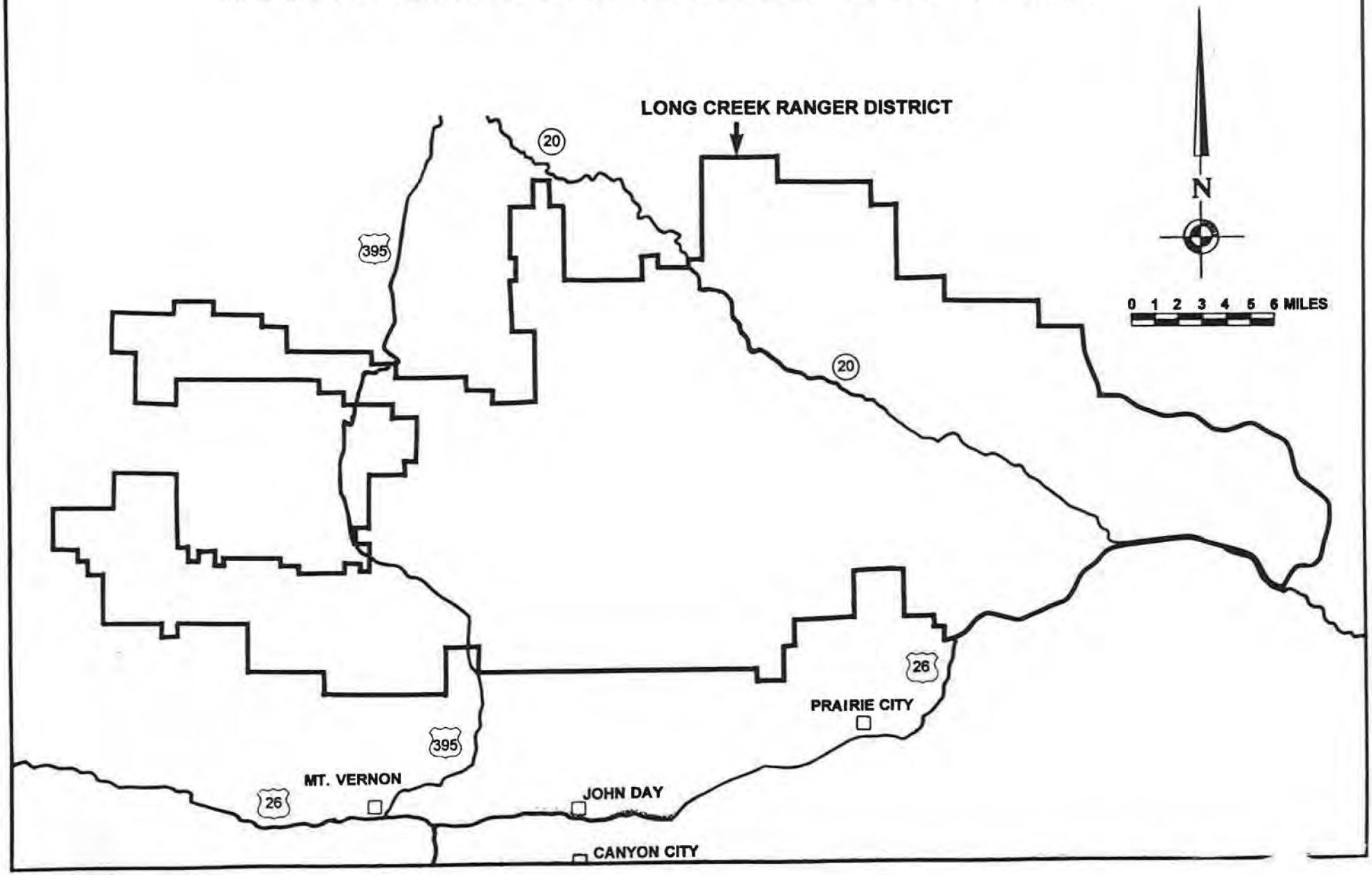
CALIFORNIA
NEVADA

NORTH FORK JOHN DAY RANGER DISTRICT
HISTORIC MINING STUDY PROJECT
LOCATION MAP



LONG CREEK RANGER DISTRICT
HISTORIC MINING STUDY PROJECT LOCATION MAP



Section 1
The Background

Regulatory Framework

The federal government recognizes that important archaeological and historical properties are valuable, non-renewable representations of our cultural heritage. A number of federal laws, regulations, executive orders and guidelines have been established that deal specifically with consideration of our cultural heritage in the planning process for Federal undertakings. All Forest Service personnel are directed to avoid harming the fragile cultural resources, artifacts, archaeological sites, Native American sacred and cultural areas and historic sites and structures. Forest Service personnel protect and manage cultural resources to comply with the following legislation:

Antiquities Act of 1906
Historic Sites Act of 1935
Reservoir Salvage Act of 1960
National Historic Preservation Act of 1966, as amended
National Environmental Policy Act of 1969
General Authorities Act of 1970
Executive Order 11593 of 1971. This is now in NHPA.
Archaeological and Historic Preservation Act of 1974
Archaeological Resources Protection Act of 1979, as amended
American Indian Graves Protection and Repatriation Act, 1990

Agencies have interpreted these laws and issued regulations and policy statements to assist in compliance with these laws and orders. Among those potentially pertinent to Malheur and Umatilla National Forests are:

36 CFR 60, - National Register of Historic Places (NRHP)
36 CFR 63, - Determinations of Eligibility for Inclusion in the National Register of Historic Places
36 CFR 800, - Protection of Historic Properties
43 CFR 3, - Preservation of American Antiquities
43 CFR 7, - Protection of Archaeological Resources: Uniform Regulations
Guidelines for Federal Agency Responsibilities, Under Section 110 of the National Historic Preservation Act (Federal Register 53.31, February 17, 1988)
Archaeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines (Federal Register 48:190, September 29, 1983), and
National Register Bulletins: 15, 16, 30, 31, 36, 38, 42

Federal agency responsibilities for preservation of historic and archaeological resources began with the passage of the 1906 Antiquities Act (P.L. 59-209; 16 USC 431-433). This act enabled

the Federal government to set aside and protect "historic landmarks, historic, and prehistoric structures and other objects of historic or scientific interest."

The 1935 Historic Sites Act (P.L. 74-292; 16 USC 461-471) expanded the role of the Department of the Interior in determination and protection of "historic and archaeological sites, buildings and objects." In addition, a policy to protect nationally significant properties was initiated. Out of this law came the National Historic Landmark (NHL) program. The Reservoir Salvage Act of 1960 (P.L. 86-523; 74 Stat. 2201; 16 USC 469-469c) facilitated the protection of data from resources impacted by reservoir construction. The resources had to be of "exceptional historical or archaeological significance."

The National Historic Preservation Act (NHPA) of 1966 (P.L. 89-665; 16 USC 470, as amended; 80 Stat. 915) mandates that all federal agencies must consider the effects of their projects and programs on cultural resources listed on the NRHP. Later amendments (P.L. 91-243; P.L. 93-54; P.L. 94-422; P.L. 94-458; P.L. 96-199; P.L. 76-244; P.L. 96-515) required that all federal agencies:

a) Inventory, evaluate, and where appropriate, nominate to the NRHP all significant cultural resources under agency ownership or control (Section 110(a)(2)).

b) Prior to agency approval of activities, a project's impact on eligible or potentially eligible properties must be considered. The Advisory Council on Historic Preservation (ACHP) must be allowed a reasonable opportunity to comment on the proposed project (Section 106).

c) A data recovery program on eligible or listed archaeological properties must be completed prior to damage or destruction (Section 110(b)), as reported by the House Committee on Interior and Insular Affairs, 96th Congress, 2nd session, House Report, No. 96-1457, p. 136-37.

In January, 1967, the Secretary of the Interior sent letters to all governors to obtain the mandated participation of the states in the NRHP program. The Secretary requested that each state determine and designate a representative with responsibility for preparing surveys, receiving grants, and working with the Department of the Interior in developing and implementing the programs required by law. The role of the states and the duties and responsibilities of the designated official (SHPO) were first published in the February 1969 Federal Register.

The 1969 National Environmental Policy Act (NEPA) (P.L. 91-190; 83 Stat. 851; 42 USC 4321) required that all environmental aspects, including important historic properties, be considered during the planning of federal action and as part of the process and review of environmental impact statements.

In 1971, President Richard Nixon signed Executive Order 11593, "Protection and Enhancement of the Cultural Environment." This Order authorized federal agencies, with the advice of the

Secretary of the Interior in cooperation with SHPO's, to locate, inventory, and nominate to the Secretary of the Interior all sites, buildings, districts, and objects under their jurisdiction or control that appear to qualify for listing on the NRHP. In addition to requiring the above process, this Presidential Order offered protection to those properties determined eligible for and nominated to the NRHP. Subsequent amendments to the NHPA incorporated the programs and requirements of the Order.

Three years later, in 1974, the Archaeological and Historic Preservation Act (P.L. 93-291; 88 Stat. 174; 16 USC 469) required the Secretary of the Interior be notified of any federal project that would adversely affect a significant archaeological or historical property and that a data recovery or mitigation program for cultural resources be implemented if appropriate.

The Archaeological Resources Protection Act (ARPA) of 1979 (P.L. 96-95; 93 Stat. 721, 16 USC 470a) supersedes the 1906 Antiquities Act (P.L. 59-209; 93 Stat. 225, 16 USC 432-32). ARPA provided that prior to excavations on federal lands permits for archaeological investigations must be obtained from the agency with jurisdiction over the lands and resources. ARPA also established stiff fines and extended prison sentences for individuals removing artifacts from public lands without a permit. It has since been amended to clarify the punitive aspects of the law.

To implement these laws, a number of regulations have been promulgated by the Department of the Interior, primarily through the National Park Service, the agency charged with administration of the National Register of Historic Places (NRHP) program. What follows is a brief discussion of those regulations as they apply to the 106 process model for Malheur and Umatilla National Forests.

The Department of the Interior has provided regulations for determining site eligibility for the NRHP (36 CFR 60, 36 CFR 63). Additionally, 36 CFR 66 provides standards for data recovery and other guidance for cultural resource surveys. Definitions to implement the Antiquities Act can be found in 43 CFR 3. Procedures for implementing the Archaeological Resources Protection Act are stated in 43 CFR, Part 7.

ACHP regulations, Protection of Historic and Cultural Properties (36 CFR 800) provided the procedures for compliance with Section 106. The ACHP's role is one of advice and consent to review the actions of federal agencies when federal undertakings affect National Register or eligible properties. The Council also reviews plans to mitigate federally caused adverse impacts to eligible properties through the consultation process.

Beyond the regulations offered in the previously discussed manuals and regulations, the Keeper of the NRHP has offered interpretations for implementing the legislation and regulations through a series of National Register Bulletins. These cover a wide variety of topics and are organized by

single subjects. Of particular interest to Forest staffs are National Register Bulletin 15, How to Apply The National Register Criteria for Evaluation; National Register Bulletin 16A, Guidelines for Completing National Register of Historic Places Forms (with supplement); National Register Bulletin 30, How to Identify, Evaluate, and Register Rural Historic Landscapes; and Draft National Register Bulletin 31, Surveying and Evaluating Vernacular Architecture; National Register Bulletin 36, Guidelines for Evaluating and Registering Historical Archaeological Sites and Districts; National Register Bulletin 38, Guidelines for Evaluating and Documenting Traditional Cultural Properties. National Register Bulletin 42 Guidelines for Identifying, Evaluating, and Registering Historic Mining Properties is an important guide. These Bulletins act to flesh out the comparatively vague language of the Code of Federal Regulations and interpret the regulations for certain types of properties through specific examples.

In addition to the resource management oriented legislation and regulations, federal legislation also requires that American Indian sacred and cultural values be considered in the cultural resource planning process. NEPA mandates that American Indian sacred areas be identified for potential adverse impact. NHPA deals with identification of American Indian cultural resources. The American Indian Religious Freedom Act of 1978 (AIRFA) (P.L. 95-341; 92 Stat. 469) provides for legalized status for sacred places, animals, artifacts, and plants of American Indians. In addition, American Indians are allowed access to sacred sites on public lands under AIRFA. Additional clarification is provided by the Council on Environmental Quality which allows for Indian tribal participation in the planning process (40 CFR 1501.7; 40 CFR 1503.1). The American Indian Graves Protection and Repatriation Act (NAGPRA) (1990) requires consultation with "appropriate" Tribes prior to intentional excavation or removal of an inadvertent discovery of human remains and associated cultural items.

This Historic Preservation Plan (HPP) defines a cultural resource as the physical remains of past human activity having demonstrable association with prehistoric, historical events, individuals or cultural systems. Cultural resources may include such things as archaeological sites, districts and objects; standing historical structures, objects or groups of resources; locations of important historic events; or places, objects and living or non-living things that are important to the practice and continuity of traditional cultures. Under the broader heading of cultural resources are three more restrictive terms, historic property, traditional use area and sacred or religious site.

Historic Property is a legal term and refers specifically to any cultural resource listed on or considered eligible for inclusion in the National Register of Historic Places. A historic property may be an archaeological site, a historical site, or a traditional use area. Not all cultural sites meet the specific NRHP criteria for historic property designation.

A *traditional use* area is a place or landscape that is important to a traditional culture. It may include such things as a community, a sacred site or an area from which food and nonfood resources were obtained.

Sacred sites are places important to the practice of traditional religions. Their relationship to traditional religions makes it possible for sacred sites to become historic properties but they are

also considered under statutes designed to protect First Amendment guarantees to the free practice of religions.

Cultural resources are the physical remains of past human activity and present a clear tie between the present and the past. These tangible remains are protected under federal laws as discussed above.

The National Register of Historic Places

The National Register of Historic Places (NRHP) was created by the National Historic Preservation Act of 1966. In order to be eligible for nomination to the NRHP a property must meet certain eligibility criteria. This criteria are listed in 36 CFR 60. That states:

The quality of *significance* in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association AND: (emphasis added)

(a) that are associated with events that have made a significant contribution to the broad patterns of our history; or,

(b) that are associated with the lives of persons significant in our past; or,

© that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or,

(d) that have yielded or may be likely to yield, information important in prehistory or history.

In order to be eligible, a resource must have integrity of location, design, materials, setting, workmanship, feeling and association and it must meet at least one of the four criteria listed above. The resource may be of local, state, regional or national importance. In terms of management, however, a resource need not be formally listed or included in the NRHP to be protected under Federal law. A resource must only be eligible, or meet the requirements of eligibility, to be entitled to protection under the various regulations.

Section 2
Historic Context and Research Design

A Historic Context, as defined by the National Register of Historic Places (NRHP) is:

> . . . an organizing structure for interpreting history that groups information about historic properties that share a common theme, common geographical area, and a common time period. The development of historic contexts is a foundation for decisions about planning, identification, evaluation, registration, and treatment of historic properties, based upon comparative historic significance (National Register Bulletin 15:53).

The context, as defined by the NRHP, contains three elements and serves two essential functions in the cultural resource management decision making process. The three elements are time, place, and theme. The time element is a parameter that defines, or is related to, a chronological period encompassed by the activity discussed in the stated theme and serves as the period of significance. Place is the specific geographic area at which activities associated with the theme took place. The NRHP recognizes that place can be defined by a variety of methods such as political subdivisions, planning areas, or land management units such as U.S.F.S. ranger districts. Place also is very useful in helping determine a resource's level of significance as the resource may be associated to the larger geographic areas. Theme identifies the basic socio-cultural activity or lifeway represented by the area under discussion. In the historic context these are represented by general types of historic human endeavor such as mineral extraction (mining) and beneficiation (refining). The two essential functions are to identify the specific types of resources expected and their probable condition to support the evaluation process. Identification of pertinent themes also serves to focus the research topics that are critical to evaluations under Criterion d.

The context is linked to actual properties through property types which are defined as "a grouping of individual properties based on a set of shared physical or associative characteristics" (National Register Bulletin 16: 8). The property types developed are intended to be used with the concerns in the research design. This allows the Forests' resources to be evaluated against the "standard" example of that property type. For those resources considered eligible and likely to be adversely impacted by any proposed action, a data recovery or treatment (mitigation) plan may need to be developed. Mitigative action takes place within the framework of a research design, based on this document, but tailored for the specific resource. The historic context and its associated property types thus support the decision making process in cultural resources management. The context allows for: 1) consistent resource evaluations; and 2) serves as a guidance document for the types and quantities of data needed to address a research design for the Forests.

Physical Environment and Setting

Oregon is cut from north to south by the Cascade and Coast mountain ranges. Both ranges continue into Washington (north) and California (south). The Cascades are sometimes referred to as the "backbone" of the state. The Cascades divide the state in two segments: eastern- central Oregon and western Oregon. Eastern Oregon is noted for the Blue Mountains, which are actually several ranges. The Blue Mountains have been described as "a high plateau, deeply cut by an intricate system of steep walled, rim rock, canyons." (Tucker 1940:1) The Blue Mountains of the Umatilla National Forest are a high plateau. The walls are deeply cut and steep walled, rim rock canyons abound. The Forest includes the main range of the Blue Mountains from the West and on the lower John Day River to the northernmost section of Garfield and Asotin Counties, Washington. Extensive volcanic activity was followed by stream cutting resulting in the canyons of the Snake, Grande Ronde, Wencha, Asotin, Tucannon and others (Tucker 1940:1-5).

In the rough terrain of eastern Oregon is found the largest number of active mining operations. Along the northern border of Oregon is the Columbia River. Between the Cascade Mountains and the Coast Range is the Willamette Valley. The Valley extends from the Columbia River south for 200 miles. The Willamette River runs the entire length of the valley. South of the Willamette Valley is the Umpqua River Valley. Much of northeastern Oregon is rolling uplands in addition to the mountainous areas. These lands grow wheat and are used for raising livestock (Anonymous 1941:1-4).

Volcanic lavas formed the Cascade Range. The lava was ejected or flowed from volcanic vents. The vents are present in the craters and sharp peaks on top of the lava plateaus throughout the Cascade Range. Mt. Hood (11,000 feet +) is the highest of these vents. Molten lava flowed from these vents while dust and ash were scattered over large areas. The Coast mountains are primarily shales, sandstones and conglomerates. The west slopes of the Cascades are more varied and include Upper Tertiary lavas, volcanic tuffs, shales and sandstones. Intrusions of partly or wholly crystalline rocks exist and oftentimes are associated with ore deposits. Heavy faulting resulted in the uplifting of the Blue Mountains and much of the other topography found in eastern Oregon (Anonymous 1941:1-15).

BACKGROUND AND EXPLORATION

The Umatilla and Malheur National Forests are located in an area that includes part of two physiographic and Native American culture areas -- the northwestern Great Basin and the southwestern part of the Columbia Plateau. When Lewis and Clark crossed the Columbia Plateau in 1805 and 1806, they learned about and, in some cases, encountered Northern Paiute and Penutian peoples in and north of what is now the two national forests. Three Penutian tribes and one Northern Paiute subgroup occupied and used this area from an unknown beginning until the mid to late nineteenth century.

The Northern Paiute Hunipuitokado (Walpapi) occupied an area approximately 700 square miles (Blyth 1938:403; Stewart 1938: Figure 3, 1939:131), bounded on the west by the Deschutes River below its confluence with the Crooked River (Steward and Wheeler-Voegelin 1974:182; cf. Fowler and Liljeblad 1986: Figure 1). They spoke a dialect of the Western Numic language -- a branch of the widespread Uto-Aztecan family (Niller 1986:Figure 1); their northern neighbors spoke languages of the Penutian family. These tribes included the Umatilla and Tenino, who spoke dialects of the Sahaptin language, and the Cayuse, who spoke a Penutian language apparently unrelated to Sahaptin or other Penutian languages (Minor et al 1979:84 and Table 5). They occupied territories in the Columbia River and Snake River drainages from the Dalles on the Columbia until the great bend that River takes to the north and then in eastern Oregon and Washington beyond the northern extension of the Umatilla National Forest.

The Tenino and Umatilla had villages on the Columbia River between the Dalles and eastern Umatilla County, but occasionally used the northernmost portion of Hunipuitokado country (Ray et al 1938:Figure 1; Hines 1991:1-2, 54 and Plate 6, cf. Minor et al 1979: figure 15). The Cayuse occupied what is now the northeast portion of the Umatilla National Forest; their territory was crossed by several tributaries to the Snake River. The Sahaptin-speaking Nez Perce, who lived along the Snake River to the east of Cayuse territory probably traveled through the project area.

Knowledge of the history and cultures of these people prior to the nineteenth century is limited by cultural change initiated during early Euro-american contact. Since these changes occurred long before the birth of the tribal members whose memories of past events and places were first recorded by anthropologists and other outsiders, the information about their culture could not have been based on any direct experience. Before direct contact the native population of the region was greatly reduced by epidemics of diseases introduced from Europe and the United States (Campbell 1990:22 and Table 2-1). The fur trade, which dominated the lower Columbia Valley between 1811 and 1850, had a direct impact on the Tenino, Umatilla and Cayuse, eventually leading to their re-settlement in reservations by the mid 1850s and their subsequent violent conflict with White settlers and miners who sought to encroach on reservation lands (Campbell 1990;17-18; Hines 1991:20, 54). One writer referred to the lower Columbia and Snake River tribes as "forgotten tribes," a designation applicable to the Hunipuitokado as well. In 1865 the Treaty of Woll-pah-pe, to which apparently no leader of the Hunipuitokado was a signatory, again led to a series of violent encounters that reduced the already small numbers of these Northern Paiute prior to major White settlement of their territory (Wheeler-Voegelin 1955a, b and 1956:2-3).

The Columbia-Snake drainage ~~are~~ in Oregon occupied by both Northern Paiute and Penutian is a relatively high (5500 foot base elevation) treeless plateau, deeply dissected by the John Day and the Deschutes Rivers, their tributaries, and several lesser tributaries to the Columbia. Thus, in spite of low annual precipitation, it is well-watered, providing salmon and large and small game as well as roots and bulbs (camus and bitterroot in addition to the Lomatium for which the Northern

Paiute group was named) and a variety of seeds and berries. Salmon was a staple and was air-dried, pounded and stored for winter use in skin bags (Fowler and Liljeblad 1986:438; Hines 1991).

The Hunipuitokado had conical winter houses with a framework of willow poles fastened to a hoop at the top left uncovered for a smoke hole; the poles were covered with tule or grass twined or sewn into mats; a doorway was covered with skins. Generally speaking houses were not arranged in a formal village pattern, but were dispersed at favorable campsites. The size and composition of winter villages apparently varied a great deal from area to area or from year to year; an average size is usually estimated at approximately 50. Winter camp or village sites were chosen for proximity to food-caches, small or large game that could be taken in winter months, fuel and water sources. Households consisting of close kin and an occasional friend may occupy a cluster of two or more winter houses. During spring through early fall one or more households would leave the village site for hunting or collecting expeditions (Fowler and Liljeblad 1986:443; Stewart 1941).

Information about the Tenino probably applies equally well to the Umatilla; the Cayuse are apparently less well known. Before moving to the Warm Springs Reservation, the Tenino had four sub-tribes, each of which occupied a winter and a summer village. The approximate location of village sites and special use areas is shown on a map prepared by Murdock (Hines 1991: Plate 6). Village population size was not reported by Murdock, but the Tenino were estimated at around 1400 at A.D. 1800; the Umatilla were somewhat more numerous, ca. 1600 to 1900; and the Cayuse, ca. 500.

In the Tenino winter village, each family unit slept in a semi-subterranean earthlodge with an elliptical floor plan and for daytime activities a gable-roofed rectangular frame building. In their summer village site each family constructed a flat roofed shed supported by poles with mat siding. The sheds served as both living quarters and room for drying salmon. Small task groups left the village for several days at a time to hunt, fish or collect various plant or other resources. Two or three times a year the Tenino would gather for festivals and ceremonies either at the village near the Dalles or the one at the mouth of the John Day River. The Tenino participated in the complex intertribal trade network that operated along the lower Columbia (Murdock quoted by Hines 1991; Ray 1942).

Although their regular contact and similar environmental conditions led to many cultural similarities, there were also significant differences between the original Northern Paiute and Penutian occupants of what are now the two national forests. The Tenino and Umatilla were much more numerous than either the Cayuse or Hunipuitikado even after decimination by disease and warfare with Euro-american settlers. They lived in more stable villages and were more formally organized with hereditary chiefs and separate war chiefs in contrast with the more fluid, informal organization of the smaller more dispersed Northern Paiute population.

Relations between the Northern Paiute and the two Sahaptin-speaking peoples were characterized by conflict, generally in the form of Umatilla or Tenino slave-taking parties or raiding and temporary incursions for game, fish, horses or other property. After Euro-american contact, the Northern Paiute were seen fishing in the Columbia, but apparently never attempted to establish permanent camps in Tenino or Umatilla territory (Minor et al 1979: 101; cf. Murdock in Ray et al 1938:397-9). The Teninos may have been gradually encroaching on Northern Paiute territory just prior to their removal to the Warm Springs Reservation (Murdock, reprinted by Hines 1991:24).

There are descendants of aboriginal occupants of north central and eastern Oregon living today in the Umatilla Reservation near Pendleton or the Warm Springs Reservation. There are probably others who live elsewhere in the state. Sites that may be held traditionally or culturally significant to descendants of the tribal groups occupying or using the mining districts aboriginally may include the sites of former villages or temporary summer camp sites, burial sites or places associated with events that are important historically or in mythic tradition.

After their initial visits of exploration, Europeans were interested in the potential for natural resource exploitation in the lands that became Oregon. One of the earliest explorers was James Cook. Cook's third and last voyage was designed to locate the Northwest Passage, to inventory the natural environment, to claim territory for England and to establish alliances with Native Americans. Departing in 1776 from Plymouth, Cook began the arduous journey to Nootka Sound by way of Cape Horn. Cook missed the Columbia River and Strait of Juan de Fuca passage and was later killed in Hawaii. However, Cook's posthumously published journals provided important geographical information about the Northwest. In addition, Cook's journals publicized the great wealth in furs available. Consequently, a number of traders traveled to the Northwest Coast. While the coast line of Oregon was extensively explored, the interior sections were less so. Alexander Mackenzie led early efforts at exploration of the interior of Oregon. Funded by the Northwest Company, a coalition of Canadian fur merchants challenging the authority of the Hudson Bay Company, Mackenzie searched for a water route to the Pacific in 1789. While failing to find the Northwest Passage, Mackenzie traveled the Arctic along the Mackenzie River. A later expedition traveled along the Peace and Parsnip Rivers and to the Fraser River. After reaching the Pacific by descending the Bella Coola River, Mackenzie had traversed a large section of the Pacific Northwest (Dodds 1977: 28-34)

The possibilities offered in the interior Northwest underwent scrutiny as a result of the Louisiana Purchase. The United States claimed land across two-thirds of the North American continent. President Thomas Jefferson, aware of previously exploratory efforts and motivated by the need to determine the nature of the newly acquired lands and the resources contained there, and to find feasible routes west, sent a number of Federally-sponsored expeditions into the Louisiana Purchase including one headed by Meriwether Lewis and William Clark. Lewis and Clark

traveled down the Columbia River to the Pacific and became the first known Euro-americans to investigate the area.

Jefferson and others in the government were concerned about encroachment by British and Canadian traders into the vast new territory. Among the items on their agenda, Jefferson ordered Lewis and Clark to document the best water transportation route in the Missouri and Columbia drainages. The hope was that such a route, once identified, would provide the United States a direct overland connection with the rich fur bearing country. In addition, the expedition was to establish contacts with tribes along their route, stressing the advantages of a trading relationship with the United States rather than the British, primarily the Northwest Company (DeVoto 1953:1-50). Departing from near St. Louis the expedition traveled up the Missouri River into present day North Dakota. At the Mandan villages they accepted the services of a French-Canadian hunter, Charbonneau and his Native American wife Sacajawea. Leaving in April, 1805 the group ascended the Missouri River and then went on to the Jefferson, Madison and Gallatin Rivers. The party crossed the Rockies to the Columbia, traveling down the Clearwater River to the Snake River and finally to the Columbia River. In October, 1805 the expedition descended the Columbia. They traveled through the rough water at Celilo and The Dalles. Lewis and Clark left The Dalles in early November and reached the mouth of the Columbia. The expedition wintered at Fort Clatsop and then began the return journey through the Columbia Valley. The group discovered the Willamette River, traveled back through The Dalles and crossed the Rockies and descended the Missouri River to St. Louis. Lewis and Clark established contacts with the Flathead, Nez Perce, Snake, Crow, Blackfeet and Shoshoni tribes, all of whom may have occupied or traveled through parts of the two modern Forests under consideration, at least seasonally.

Lewis and Clark's exploits were widely publicized. They reported on the fur potential of the Columbia River area and lavished praise on the Willamette Valley as an area for agricultural settlement. However, the quickest to respond were those engaged in the beaver trade. Anglo-americans formed many trading companies operating from St. Louis, Missouri and using the Missouri River as a route to the Northwest. Trappers and traders followed Native American routes and utilized Indian knowledge of productive trapping streams and geography to survive. Native Americans provided important information to these trappers and traders and helped to establish the mutually beneficial trade networks. Friendly trading relations with tribes was a critical factor in the success of trappers.

Manual Lisa led a party up the Missouri in 1807. However, John Jacob Astor was the first American fur trader to actively venture into Oregon. Astor founded the American Fur Company in 1808 and later went on to dominate the trade headquartered in Fort Astoria. In 1811 the Astor-Hunt Overland Party included John Day. The party attempted to reach Astoria but bad weather and food shortages stopped the party near Twin Falls, Idaho. Native Americans provided food and canoes and the party soon traveled down the Snake River. Day and another traveler

survived Hell's Canyon and were rescued by Native Americans near Walla Walla. The two men traveled down the Columbia but were robbed of their clothing and supplies. They attempted to return to Walla Walla when they encountered some trappers. An unnamed river entered into the Columbia near where Day and his partner were attacked. Local tradition maintains that the trappers soon referred to this as "John Day's River." (Anonymous 1902a:1-5).

Competition between American fur companies and British (Canadian) companies was intense, particularly after the War of 1812 began. The end of the war resulted in the 1818 Treaty of Joint Occupation that postponed the question of sovereignty while guaranteeing United States citizens access to the area. However, after the collapse of Astoria, British fur companies ruled supreme in the Oregon Country.

Aside from those interested in the profit potential from natural resources, American missionaries also focussed their interests on Oregon Country. Some Native American and Euro-american trappers and traders were Christian. The premier British fur company, The Hudson Bay Company, also did some missionary work. More importantly, the opening of the Oregon Country coincidentally occurred at a time of the Great Revival or interest in religious and social crusade. The Board of Missions of the Methodist Episcopal Church responded by sending Jason and Daniel Lee and three laymen to Oregon in 1834. Their mission in the Willamette Valley, approximately 13 river miles north of Salem, was moderately successful. Outreach efforts included Salem, The Dalles, Clatsop Plains, Nisqually and Oregon City. Missionaries were concerned with teaching morality, Christianity, farming, crafts, and education. Despite the growth of religious activity during the period, denominationalism resulted in competing missions and rivalry. For a variety of reason, in 1844 the Methodists abandoned their mission experiment in Oregon.

In 1836 the American Board of Commissioners for Foreign Missions sponsored a mission party led by Dr. Marcus Whitman that included three missionary wives. Working among the Cayuse, Walla Walla, Nez Perce and other tribes, the Whitmans tried to establish farming habits amongst migratory Native Americans. Increasing tensions between Native Americans and the missionaries culminated in the Whitman Massacre in 1847 where fourteen members of the Waiilatpu mission were killed and forty-seven captured.

The missionary movement of the 1830s and 1840s coincided with the first great migration to Oregon Country. Knowledge of the rich agricultural lands of the Willamette valley spread from Lewis and Clark, missionaries, fur trappers and others who traveled to Oregon. As economic depression struck the United States in the 1830s, many became interested in moving westward to richer lands. Oregon offered fertile lands, good weather, extensive waterways, forests and new opportunities (Dodds 1977:1-55).

THE OREGON TRAIL AND STATEHOOD

The path that became famous as the Oregon Trail is rooted in previous explorations. The Lewis and Clark expedition's route across the Rocky Mountains was too arduous to be viable for most Americans. However, their journey down the Columbia was a precursor to a route followed by many emigrants years later. When John Jacob Astor instructed Wilson Price Hunt to establish a fort at the mouth of the Columbia River, his journey from St. Louis established part of the overland route that was later followed. In 1825 William Ashley brought supplies to a trapper rendezvous on the Green River by way of the Platte River-South Pass route added another segment to the Oregon Trail.[1] Early estimates of usage indicate that those emigrants who used the Oregon Trail to the Willamette Valley prior to 1849 numbered:

Year	Number
1841	32
1842	197
1843	875
1844	1,750
1845	3,000
1846	1,500
1847	4,500
1848	1,000

From: Winther 1948: 122

Beginning in Independence, Missouri the two routes developed to cross the almost 2,000 miles to Oregon. There were cutoff's and diversions that added or subtracted mileage depending upon the weather and success of the detour. However, the basic route remained a well-traveled yet difficult journey requiring appropriate equipment and supplies. Native American attacks were an

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[1]The Oregon Trail has been the subject of many books. Some of the most reliable and interesting include Oscar O. Winther, *The Great Northwest* (New York: Alfred A. Knopf, 1948); Phillip A. Rollins, ed., *The Discovery of the Oregon Trail; Robert Stuart's Narrative . . . 1812-1813* (New York: C. Scribner's Sons, 1935); U.S. Congress, House Committee on Roads. The Old Oregon Trail, a Report on House Joint Resolution 232, HJR 328 and Senate Bill 2053, January 23, February 13, 19 and 21, 1925 (Washington: Government Printing Office, 1925); and Watson, William J., *Journal of an Overland Journey to Oregon, Made in the Year 1849* (Jacksonville, Ore.: E. R. Roe, 1851).

ever present danger. Most emigrants organized into companies and wagon trains provided the security of numbers, along with the problems of group living. Despite the hardships, large numbers of settlers came into the Oregon County. The conflicts decreased dramatically in 1855 when the Nez Perce, Cayuse, Umatilla and Walla Walla Indians ceded large amounts of lands to the Federal government and were removed to reservations. There was a supplementary and amendatory treaty in 1863 that resulted in the Nez Perce ceding its reservation lands including the Wallowa Valley.

These early settlers faced economic frustration. The Hudson's Bay Company provided the primary market for early agricultural goods. However, the situation quickly changed when gold was discovered at Sutter's mill in 1848. Food supplies and lumber were easily transported to San Francisco. The California gold rush helped eliminate the economic problems faced by the Willamette settlers during the 1840s. The situation for Oregon farmers improved more dramatically when the 1853 gold strike in the Rogue River Valley of Oregon opened the territory to gold mining.

Politically, the situation in Oregon stabilized by the end of the 1840s. The so-called Oregon Question was a campaign issue in 1844 when Democrat James K. Polk campaigned against Whig Henry Clay on a platform of 54 40 or Fight. Polk was elected and proposed the equitable settlement of the boundary along the 49th parallel. This was formalized in 1846 and Territorial status granted to Oregon in 1848. Debate over statehood was within the context of the national debate on slavery and its expansion into the western territories. Eventually Oregon became a non-slave state in 1859 and remained loyal to the union cause throughout the Civil War.

OREGON TRAIL MAP
HISTORIC MINING STUDY PROJECT

TRANSPORTATION

In order to provide safe, dependable and regularized connections with the western territories, the United States Government, following a pattern of exploration started with Lewis and Clark, conducted additional surveys in the West. These expeditions were designed to survey, select and map the most desirable transportation routes through the western territories. Eventually these surveys selected the transcontinental railroad routes through the northern United States. In 1853 a road survey was conducted (Burlingame 1957:104-106). Four years later, a member of the Steven's party, Captain John Mullan, was authorized funds to construct a road from Fort Benton to Walla Walla, Washington. Construction on the Military Road or the Mullan Road, lasted from 1857 to 1863. The 600 mile Military Road followed Indian travel routes and was used to move military supplies and personnel. It served as a transportation link between the Columbia and Missouri River drainages and fulfilled Jefferson's idea of connecting the two areas. The military traffic was primarily moving east to west and back again, with little activity to the north and south of the Military Road. The spread of the mining frontier stimulated further transportation developments.

Private attempts to provide commercially viable travel routes also developed. Primarily designed to fill-in or connect outlying areas with military roads, the private roads often went north-south in direction. In 1868 the Federal government gave land to Oregon for construction of a road. The state could then give the land to a road construction company in exchange for building the road. One road that was partially constructed was The Dalles Military Wagon Road running from The Dalles to Boise, Idaho (Anonymous 1902: 4).

Another innovation was the use of steam travel. Portland businessmen formed the Oregon Steam Navigation Company (OSNC) in 1860. The company was designed to provide transportation into and out of the eastern Oregon mining areas. The OSNC had a monopoly on the key portages of the Columbia River at The Dalles and the Cascades which eliminated competitors. In addition to providing needed goods and services, the OSNC increased the ties of eastern Oregon to Portland. Portland effectively developed an east-west axis and became a major commercial center (Dodds 1977: 75).

Railroads remained the sought after method of transportation, rather than wagon or freight roads. Railroads guaranteed access of goods and services into and from remote regions. Boosters actively sought rail lines as a way to assure prosperity and growth. Ranchers and farmers needed railroads to ship grain, cattle and sheep to regional, national and international markets. Miners depended on railroads to lower the costs of bringing machinery, equipment and basic essentials into mining areas and exporting metals and ores.

The lure of the mining trade caused entrepreneurs to consider the possibilities of rail lines to the interior of Oregon and Washington as early as the 1850s. People talked of a rail line and

steamboat route up the Columbia to reach the region, but the lack of profitable traffic kept investors away. Throughout the 1860s and 1870s traffic continued to travel by wagon as calls for a railroad were heard in the Pacific Northwest. The demands intensified after the completion of the Union Pacific-Central Pacific transcontinental route in 1869. In 1869 the Union Pacific, having just completed its line to Promontory, Utah, looked at a possible line north and west to the Columbia Valley. Little happened until 1879 when Henry Villard, owner of the Oregon Railway and Navigation Company (ORN), began surveys for eastern extensions of his line toward Idaho. Villard proposed to the Union Pacific (UP) that they extend the subsidiary Oregon Short Line (OSL) northwest from Wyoming to a junction with his company in northeastern Oregon.

By 1869, a southern land rail route was popular. The Union Pacific laid tracks through southern Wyoming and northern Utah in 1869. Many Oregon bound immigrants traveled the UP to Ogden, Utah and then headed north by wagon. An alternative route, the Salt Lake Trail, connected Corinne, Utah with Virginia City, Montana. Also known as the Corinne-Virginia City Road, the connection with the Union Pacific provided regularized travel and freight connections to Montana. Travelers then went west to Oregon.

The major market that convinced the UP to move into the Northwest was the freight trade to the Idaho mines. The freight moved slowly from Portland to Umatilla, the jumping off point for the more difficult trip across the mountains east. Charges averaged $30 per ton to Umatilla and whatever the market could pay beyond. During the late 1870s about 10,000 tons a year went east through Umatilla - a great lure to the Union Pacific. The two companies reached agreement and in 1880 Villard began pushing his road east toward a connection with the OSL, reaching Pendleton in 1882 and Meacham in 1883. In 1884 the two lines met at Huntington, Oregon, giving northeast Oregon direct connections to Omaha and the Midwest (Athearn 1971:311-326).

The two companies remained operating partners until 1887 when the UP leased the ORN, an arrangement that continued with a number of modifications until 1936, when the Oregon company was absorbed by the UP (Ehernberger and Gschwind 1968:125-126). During the construction period and after, the companies maintained a number of tie-cutting camps in the Blue Mountains and elsewhere to supply their needs. Frequently, the tie hacks cut all usable timber at a given location and then moved on to new stands. In some cases the tie camp lasted only one season if the demand was great but some remained as more permanent fixtures if the wood supply was ample and access to transportation readily available (Burney, Mehls and Grady 1985:50-51).

The Union Pacific-Central Pacific connected Omaha, Nebraska with Sacramento, California. The railroads received large government loans and land grants to sell to offset construction costs. States not connected by the railroad delivered impassioned pleas for rail connections. In 1864 Congress issued a charter for the construction of the Northern Pacific (NP) and gave the railroad the largest land grant in American history. The NP linked Lake Superior with the northwest Pacific Coast. Beginning in Pacific Junction, Minnesota, by 1873, the rails reached Bismarck,

Dakota Territory. Bankruptcy struck the NP the same year, however, and construction halted for many years. The UP and its associates remained the primary rail link to the Study Area.

Railroads and other transportation systems can not be underestimated in terms of their importance to Oregon's history. In addition to providing a means for goods to travel into and out of Oregon, railroads assured speedier communication with the eastern and western United States. This communication helped to break the sense of isolation that many frontier settlers felt when first arriving. By connecting Oregon to the United States and the world markets, railroads provided a means of incorporating Oregon's economy into the larger national and world arena. In particular, the need or desire for natural resources from Oregon served as an impetus for the construction and financing of railroads. As railroads crossed the State, towns and cities grew up along the routes. These larger population centers provided a market for goods brought into the State on the railroad. This symbiotic relationship continued well into the twentieth century.

FARMING AND RANCHING

Agricultural products constituted the principal commodities shipped via the railroad system. Euro-american agriculture efforts in Oregon dates to the 1840s when the Willamette Valley was widely regarded as Eden on earth. The natural prairies allowed easy plowing and the forests provided the building material, fuel and fencing supplies. Rainfall was generally ample and access to markets came via the Willamette and Columbia Rivers. Agricultural immigration was encouraged by the Oregon Donation Land Act of 1850. This law gave 320 acres of land to a homesteader and 320 acres to his wife in her own name for those who settled in Oregon prior to 1853. For those who settled between 1853 and 1855, the allotment was reduced to 160 acres. Thus Federal efforts encouraged farming and ranching in Oregon.

Many immigrants came to Oregon to farm or ranch. Oftentimes frustrated miners turned to farming or ranching when mining provided unprofitable or the need for food supplies convinced them of the opportunities offered by farming. Miners searching for gold in the John Day Valley commented on the fertile lands. B. C. Trowbridge, Charles Bleshaw and others left mining and became farmers and ranchers. One story illustrates the shortage of fresh vegetables, "At an early date John Herburger stated that he got a fine crop of potatoes and offered them for sale at 25 cents a pound. He was forced to limit the sale to any one person to 4 pounds so that all might have some" (Rand 1959: 45).

Railroads encouraged farmers to settle lands after the Civil War. Utilizing in-house promotion programs and selling grant lands owned by the rail companies, numerous settlers moved west. These farmers were wooed with the promise of opportunities through dry land farming and irrigation. Spurred by railroad, land company and even government literature that told of the changes being wrought in the climate, the retreat of the Great American Desert under the plowshare, and easy 10-year credit terms from railroads, hundreds of Midwestern farmers moved

into Oregon. Upon arrival, settlers found booming markets for their produce in the mining camps, open land for minimal prices and moisture to grow crops. What went unrealized until later was that a periodic wet cycle was in progress, soon to be followed by a dry cycle during the mid-1890s.

In 1861 B. C. Trowbridge homesteaded in Grant County. Soon other claims filled the valleys away from the John Day River. A mixture of livestock raising and farming served the settlers in the early years. Wheat, oats and barley were ground into flour. At one time there were flour mills in Long City, Prairie City, John Day and Ritter. Flour was an important, easily hauled and thus, valuable way to transport grain.

Along with traditional farmers came ranchers. Ranching in the Territory dated to the 1840s. In 1848 Joseph Watt brought the first herd of high-grade sheep over the Oregon Trail. Watt later became the force behind the Willamette Woolen Manufacturing Company in Salem. Sheep raising remained an important enterprise until the 1860s when farmers and cattle ranchers began placing pressure on sheep herders and charged that sheep destroyed rangelands. In the area south of The Dalles, between John Day and the Deschutes Rivers and in the Umatilla country, sheep raising remained a prosperous activity into the 1870s. Utilizing laws such as the Timber Culture Act to claim parcels of land and, taking advantage of the availability of federal grazing lands, ranchers increased their herds during the 1860s and 1870s. The 1870s and 1880s were good years for stock raising in Oregon. Prices were high and grazing land appeared unlimited. Western conditions were good and markets continued to expand as urban areas in the eastern United States became large importers of beef and sheep. New towns including Linkville (later Klamath Falls), Pendleton, Umatilla City and Prineville developed to support the agricultural booms. The Dalles remained as a major supply center. However, severe winters, overgrazing and increased pressure from farmers brought about an end to the boom period of ranching by the mid-1880s. Competition between cattle ranchers, farmers and sheep herders increased by the turn of the century as sheep became the predominant range animal. At the same time, conservation efforts to protect natural forests and timber reserves created a new demand on land usage (Rand 1959:40-46; Anonymous 1902a: various, Dodds 1977: various).

MINING

Expansion of the Mining Frontier, 1852-1950

> The gold fields of Oregon cluster around its mountain ranges, and may accordingly be designated by the names of its principal chains of mountains, as that of the Coast range, the Cascade Range gold region, the Blue Mountains gold field; those of the three cross-ranges of mountains, in Southwestern Oregon, known as the Siskiyou Mountains, the Umpqua Mountains, and the Calapooya Mountains, and those of the Snow and Puebla; in Southeastern Oregon. (Raymond 1870: 210).

The Blue Mountains, in northeastern Oregon and extending westward for over 100 miles from the Idaho border became the most important mining region of the state. Approximately 75% of all previous metal production occurred in these mountains (Anonymous 1941:7-8). Oregon's mineral industry was primarily gold mining prior to World War II. From 1930-1940, Oregon had approximately 100 producing lode gold mines (Koch 1959:1). Prior to 1900, gold mining activity passed generally from the placer mining to lode mining stages. As the easy surface mining played out in California, some miners moved into the Rogue River country of Southern Oregon. The search for gold and subsequent settlement spurred growth and development of Oregon in the 1850s and 1860s. Southern and Northeastern Oregon were heavily dependent upon mining for economic growth for many years. Howe estimates "Between 1850 and 1965, Oregon produced roughly 5.8 million fine ounces of gold and 5.4 million fine ounces of silver worth a total of about $210,000,000 at today's prices and probably 60 percent of the gold was mined before 1900." (Howe 1990(?): 1).

As mentioned above, early gold mining was generally placer mining. Placer mining dominated the 1850 to 1880 period. Individuals or groups of individuals panned along rivers and creeks looking for gold dust and nuggets. The placer (water washing) techniques the miners used required large quantities of water to wash the gold from the rocks and gravels around it. Nearby water was used to wash the gravel. Once a deposit was located, a prospector worked the area of the creek banks. Placer mining is generally the first stage of mining activity in any area. After initial discoveries, hundreds of other mineral discoveries resulted in prospectors scouring the banks of Oregon rivers. Placer mining is labor intensive, but does not require much capital or equipment. Because of that, many individuals attempted to make their fortunes from placer mining.

Placer mining, while common in the Study Area, might include an extensive system. Dams, penstocks, flumes, ditches, water holding ponds and gravel and rock piles were common. Depending upon the placer technique utilized, sluice boxes or long toms and hydraulic nozzles were used. Oftentimes support structures were in the near vicinity. Dredges, a form of placer mining, were somewhat different. Placer mines can extend for several mines along a stream bed. As technology changed placer locations were sequentially reworked. Thus, later placer operations might cover earlier operations and new tailings piles covered old workings.

A variation on placer mining was hydraulic mining. Water was gravity driven to create a high pressure and then forced through nozzles similar to fire-fighting equipment of today. The water was then directed at a hill or cut bank and ore was washed into a sluice for separation. Many evidences of hydraulicing are left today in heavily disturbed stream beds, cut-banks and hillsides. This method of mining required hundreds of acre feet of water and miners built many ditches in the 1860s for hydraulic mining purposes.

By 1852 a small gold rush was underway. The mining district was headquartered in Jacksonville. Over the next few years explorations throughout much of eastern Oregon continued. The eastern Oregon gold belt stretched from Wallowa County into Malheur and Harney counties, or approximately 14,400 square miles (Spreen 1939:15) Gold was reported on the tributaries of the Burnt, Powder and John Day Rivers. Despite these rumors of gold strikes it was reported in 1853:

> Very exaggerated rumors have appeared in various newspapers in Oregon this spring as to gold being found east of the Cascade Mountains. I have just arrived from The Dalles and I made diligent inquiry as to the truth of these statements. I cannot ascertain that any further discoveries of gold have been made since last summer; none this spring; none last fall. Gold was found in small quantities ---not enough has yet been found to repay the labor of procuring it. It is true that more productive deposits may exist and may be found hereafter; but the public is entitled to know the exact truth, and therefore I make this statement. (quoted in Spreen 1939:15-16)

During 1854 and 1855 the Oregonian published reports of successful mining along the John Day and Burnt Rivers (July 29, 1854, July 15, 1854, July 21, 1855). In 1854-55 important discoveries were made on the upper Columbia. Hundreds if not thousands of miners came into the area and spread into Canada. Farmers and ranchers benefitted from the increased population as in 1866 the Little Dalles, above Colville, report over $500,000 work of goods exported, mostly livestock (Browne 1868:559-560).

The rapid influx of Euro-americans into eastern Oregon and Idaho resulted in increased tensions with Native Americans. The Native Americans often harassed the small bands of travelers and isolated miners. The growing Euro-american population was vocal in their fear and requested federal aid. Euro-americans were not the only group to face problems from Native Americans. On May 19, 1866 Paiutes attacked approximately forty Chinese miners working near Battle Creek in Baker County. All but one were killed and scalped (Anonymous 1902a: 520-525). Beginning in 1866, Camp Logan, under the command of Lt. Colonel George Crook, served as the headquarters for numerous retaliatory missions against Native Americans. It has been estimated that within two years Crook and his troops killed a large, but unspecified number, of Native Americans thus reducing the threat to miners.

In Fall, 1861, gold was discovered at Griffin (also known as Griffiths [sic] Gulch) a tributary of the Powder River, several miles southeast of Baker (Tucker 1940: 43). The next year large placer deposits were discovered in Auburn Gulch. By 1863 Auburn Camp had a population of 5,000. Early mining in Baker county was carried out by ground sluicing and hydraulicing along with hand mining. These methods of mining continued into the 1900s. That same year the Auburn Canal was completed. This water supply was followed by the Rye Valley Ditch and later the Sparta and Eldorado Ditches. Rye Valley placers on Dixie Creek proved to be very rich,

supporting nearly continuous operations until 1914 and sporadic operations thereafter. (Wagner 1959:21). By the time the final ditches were complete, mining had evolved beyond the placer phase into hard rock. Supplies for these early camps came from The Dalles, approximately 300 miles away. The high cost of supplies combined with the difficulty of the journey made low return gravels unprofitable to work (Anonymous 1941:6-10).

The famous story of the Blue Bucket Mines helped stimulate interest in the region. In July, 1862 a party including J. L. Adams, William Cranston, Alex Rogers and James Clinton departed from Portland for the Malheur River. Adams returned the next month and reported finding gold paying ten cents to the pan. Despite the lure of wealth, the threat of Native American hostilities in many areas of Oregon hindered travel and mining activity. Despite the threat posed by native tribes, Adams found many people willing to join him for his second expedition. Unfortunately, the second group was unable to find the original location. After considerable turmoil the party split up.

In November, 1861 a large party of thirty-two left Tygh Valley to travel near John Day. The trip took six weeks in cold weather. After arriving, approximately half of the group returned to The Dalles for supplies. Later, all were killed by Native Americans (Trimble 1909:1-33). The winter of 1861-62 was difficult for everyone in the Willamette Valley. The Valley experienced heavy rainfall and the neighboring mountains experienced heavy snowfall. In December the weather was warmer, but continuous rain resulting in flooding. The difficult winter encouraged many to travel to the mines of the Salmon River and elsewhere to try their luck at mining (Spreen 1939:19-25).

In June, 1862 William Aldred and a party were traveling to the gold mines of Idaho. After going down Canyon Creek they headed west and stopped to rest. Aldred left to do some prospecting. Several minutes of panning yielded him approximately four dollars worth of gold. Aldred returned to camp but found that his partners had left him. After catching up with his party, Aldred repeated the story but his partners didn't believe him and headed on to Idaho. However, they later returned to find that a camp of several hundred men were staking out the prospect Aldred had found. Within a year there were over 10,000 residents of Canyon City (Anonymous 1902a: 2-3). The new camp quickly organized along the format used successfully in California camps. Mining laws were drawn up for the John Day District. For example, Article 19 read, "No person disabled by sickness or absent in any Indian wars shall be deemed to have forfeited his claim by reason of service or sickness." (Rand 1959: 44-45).

J. W. Tabor describes a similar journey:

> In early 1862, a body of men decided to go to Boise Basin; there probably were 50 men led by A. G. Tabor. They started from Marysville, California, going to San Francisco, then they took a boat to Portland. On their route, they fell in with a party headed the

same way. One group was led by A. J. Dickison; another by Jack Hamilton; another by Eph Day; another by C. W. Dagget and another by a man known as Scedadle Smith.

When all landed at The Dalles, they purchased all horses that could be bought but which were not nearly enough to supply all with riding horses, so many had to walk. Provisions were bought for the trip. They had to go light but some men who went afoot carried their bedding and provisions on their backs, many packing as much as 100 pounds.

These prospectors intended to follow the course of former prospectors en route to Boise Basin. They selected the south side of John Day River as their route. These parts were not charted and they had no guide, but had selected a man of their group by the name of Robert W. Waucop. . . The going along the John Day was tough with steep hillsides, slide rock, down timber, and many of the gulches on north sides with deep drifts of snow. Sometimes the outfit made only seven miles per day (Tabor 1988: 6-7).

Merchants quickly followed miners into most of the communities. By July, 1862 merchants were en route to the John Day mines. Helen Rand wrote,

> While the route from The Dalles via the John Day River was the main road in to Canyon Creek, it was always a dangerous one. The brush-covered banks of the river and its tributaries afforded excellent cover for the Indians, and many trains were attacked. But because of the high profit involved, danger proved to be no deterrent and goods kept coming in. As always, the saloons and "hurdy-gurdy" houses appeared as if by clairvoyance and were soon running full blast (1959:45).

The advent of placer mining brought about town development and growth. Some of these camps and towns were short lived. Others, became permanent settlements and provided commercial opportunities and transportation and communication between communities. Miners are often characterized as possessing a "get in, get rich, get out" attitude. The typical picture of the lone miner and his burro prospecting mountain ranges for a rich strike is characteristic of a very short period of mining. Granite, originally named Independence, is located approximately 8 miles south of the U.S.F.S. North Fork John Day Campground, was founded in 1862 by Ross Smith and Jack Long. The discovery of gold prompted the town activity. Grant Thornburg became the first mayor in 1899 (Spreen 1939:58).

Placer mining is reasonably inexpensive and possible for the lone prospector. Two large placer mines included the Klopp and the Thornburg, both near the present John Day Campground. The Klopp Mine, also known as the North Fork Mine, was described by in 1916 issue of Oregon Bureau of Mines and Geology as follows:

> Mining has evidently been carried on here for many years, the size of the water-supply ditches and of the abandoned portions of flumes and hydraulic equipment showing that some of the former operations were on a large scale. Records of production are lacking but the reports of miners and others familiar with this locality agree that the operations through usually profitable were never richly productive. The volume of gravel worked to date in this mien (and two adjoining mines to the east) is roughly estimated to aggregate 6,800,000 cubic yards, which, at a minimum of 5 centers per cubic yard, must have yielded at least $342,000. During the season of 1914 Glenn and Henderson were operating two 4-inch giants at the North Fork Mine. (Parks and Swartley 1916:163-164).

However, hydraulicing and lode mining require significant amounts of capital. With that need comes corporate entities and control. The majority of settlers in the mining areas were Euro-american in heritage. For eastern Oregon, Chinese miners exerted a strong hold on placer mining. As early as 1857 it was reported in the Portland Weekly Oregonian, "The Chinamen are about to take the country. There are from one thousand to twelve hundred in this [Josephine] county, engaged in mining. They are buying out American miners, paying big prices for their claims." (October 31, 1857: 2). Racial animosity was a factor for all minorities in Oregon. A poll-tax law was passed in 1862 stating that, "Each and every negro, chinaman, kanaka, and mulatto, residing within the limits of this state, shall pay an annual poll-tax of five dollars, for the use of the county in which such negro, chinaman, kanaka, or mulatto may reside." (Quoted in Edson, 1974:10). Oftentimes they made a living from deposits previously abandoned by Euro-american miners. In 1860, "only five of the 425 Chinese listed in Oregon resided east of the Cascades. All were residents of The Dalles, four of them laundrymen and the other a cook." (Edson, 1974:29). In 1870 there were 940 Chinese in Canyon City and 1,762 in Eastern Oregon, approximately 13.5 percent of the population. By 1890 the Chinese population decreased to 2,315 in eastern Oregon, or approximately 2.8 percent of the total. See Tables 1 and 2. Many were engaged in mining but there were also cooks, laundrymen, merchants, doctors and other professions. A rich heritage of Chinese lifestyles remains in John Day. However, as the placer mining and hydraulic claims decreased the number of Chinese decreased. Chinese miners were segregated from others in the community (Edson 1974:10-35).

Placer activity continued into the twentieth century, but was sporadic. Generally isolated miners used placer techniques, but great wealth was not found. Prospectors searched other parts of the John Day River, hoping to revive the industry that entered a bust period about 1900. Miners met with some success and mining continued until the 1930s. During the Thirties, as the nation experienced the Great Depression, a number of claims were filed along the North Fork of the John Day River. Unemployed men from all over the country tried their hand a placer mining. Some found well-paying deposits, but most simply made enough to survive. Oregon was second behind California in this depression era boom. At the time the price of gold increased from $20 per ounce to $35 per ounce. Newcomb, Merrill and Keissling wrote:

> Small-scale placer mining has certain advantages for the able-bodied unemployed. It provides a meager income to a few without requiring much in the way of training or capital. It enables them to work at any time without going through the sometimes hopeless process of finding an employer. And, in addition, mining has given many who took it up seriously a new sense of self-reliance, of independence, and of initiative. Such results have had a salutary psychological effect on many unemployed during hard times.
>
> To a few who have mined only intermittently and who have relied on the creeks to augment their incomes form other sources rather than to provide them with a living, placering has proved particularly helpful. It has enabled many men, together with their families, to have some occupation between jobs, and it has contributed more to the welfare of these individuals than the small financial returns might suggest. And to a very small proportion of the few who have stuck to the creeks fairly steadily, placer mining has proved profitable.
>
> To some who dislike discipline and authority, placer mining has proved preferable to other ways of making a living. There are men who prefer to live on 25 cents a day which they themselves earn through placer mining rather than to work for wages or to accept public aid. Placer mining has enabled such men to live their own lives to some degree at least. (Quote in Burney 1991:13-14).

Gold production continued throughout the area until World War II when President Franklin Roosevelt suspended most mining activity for the duration of the War. After the War miners returned to the area and reopened mines. Geologists estimate that the area's mines produced as much as $5 million dollars of gold by 1970.

Evans and Conyac (1983) wrote about mining on the North Fork John Day River (prior to Wilderness designation in 1984):

> Most of the area along the North Fork John Day River in the roadless area is now covered by placer claims. A few placer claims are also present along creeks tributary to the North Fork John Day River. Claims in the roadless area numbered over 200 in 1980; the exact number is difficult to determine because of new claims being located and existing claims being renewed, abandoned, or relocated. . . . Claimants now work on a small scale, many using portable gasoline-powered suction dredges. Most of the gold obtained is very fine grained.
>
> Of the hundreds of claims located over the years in the roadless area, only a few have been lode claims; no lode mining is known at the present time. Lode mining in surrounding areas began in the 1870s with the discovery of the Monumental mine in 1874 and the La Belleview mine in 1877 . . . (Quoted in Burney 1991).

The early placer diggings were quite rich. It is estimated that over $40,000,000 in gold was taken out in the first few years after discovery. (Lorain 1938:4). Placering declined beginning in about 1870 and lode and dredge mining became popular. A dredge is a self-contained floating placer mine operation. Buckets scooped up gravels that are then screened, sorted and sluiced. The gold remained in the sluice boxes and waste gravels and sand were washed back into the creek or sent by conveyor to stacks in the creekbed behind. Developed in the 1880s in New Zealand, dredging was common throughout the West. Limited dredging was done in the John Day River Valley. Dredging began before 1900 in Baker County on the lower Burnt River. The Pomeroy Dredging Company operated a 100 foot long steam powered dredge (Wagner 1959:23). The Pomeroy Dredge did not stay in operation long. However, in the Sumpter Valley there were a number of bucket-line dredges and "doodle bug" washing plants that worked until the World War II years. The *City of Sumpter* was a big bucket-line dredge that began operation in 1913 and continued until 1954. Dredge payrolls "constituted one of the principal economic mainstays to Sumpter's economy, particularly after the lode mines became inactive and local logging operations tapered off." (Wagner 1959: 23-24).

Evolution of a Mine

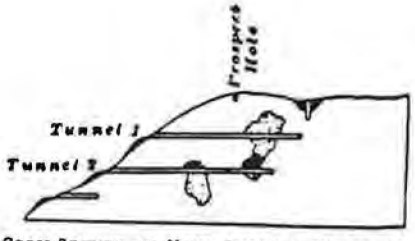
A Prospector and His Outfit.

Finding the Float.

Prospectors Opening a Prospect in a New Region West of Cripple Creek.

Expert Taking Samples.

Fissure Vein Outcrop on Hillside, Showing Surface Workings.



Cross-Section of Vein, Showing Workings.

Dotted Portion is Ore Body, Shaded is Ore Worked Out.

The History of a mine as sketched by Arthur Lakes in his book Prospecting for Gold and Silver in North America (1899).

Proportion of Chinese and Chinese Miners to White Miners in the Eastern Counties of Oregon, 1870

County	White Miners	Chinese Miners	Other Chinese	Total Chinese
Baker	528	591	89	680
Grant	386	855	85	940
Umatilla	2	36	34	70
Union County	44	34	11	45
GRAND TOTAL	**960**	**1,516**	**219**	**1,735**

Proportion of Chinese and Chinese Miners to White Miners in the Eastern Counties of Oregon, 1880

County	White Miners	Chinese Miners	Other Chinese	Total Chinese
Baker	353	638	149	787
Grant	179	790	115	905
Umatilla	0	0	138	138
Union County	34	177	158	235
GRAND TOTAL	**566**	**1,605**	**460**	**2,065**

From: Edson 1974: 34-35.

Comparative Figures of Chinese to Total Population in Oregon, 1860 to 1890

Year	Chinese Population	Total Population
1860	425	52,465
1870	3,300	90,923
1880	9,510	174,768
1890	9,540	313,767

From Edson 1974: 33.

Industrial Development of Mineral Resources, 1880-1950

The 4,520 square mile Grant County is an irregular shaped square lying in the center of the Blue Mountains and including the Strawberry, Greenhorn, Ochoco and Elkhorn Ranges. The elevation varies from 2,000 feet on the John Day River to over 9,600 feet on Strawberry Mountain. The John Day and its tributaries drain the area and the city of John Day is the largest urban area. (Anonymous 1941:12-14). Accessibility was fairly good in the 1860s.

> The country is accessible from the Columbia River by means of a good road from the Dalles to Canon city, and the regular mail route from Umatilla to Boise, which passes through Umatilla and Baker counties, along the borders of Grant. South of Canon City a good military road leads to Boise (Raymond 1870:221).

Mining districts located wholly or partially within the project area include the Canyon, Greenhorn, Middle Fork, North Fork, Quartzburg, Silvies, Susanville and Upper Burnt River . The State of Oregon organized a State Bureau of Mines in 1913 and regularized the mining districts then operational. Prior to 1913 the boundaries between mining districts were less clear-cut. An 1870 publication lists 6 districts in the study area: Dixie Creek, organized in the summer of 1862; Elk discovered in April, 1864, Olive Creek, organized Spring, 1863; Granite Creek organized in Fall, 1862; Burnt River, 1867; and Canyon Creek, date unknown (Raymond 1870:222-244). Later changes included the mergers and re-districting. The 1906 and 1916 Mining Maps of Eastern Oregon list the following districts as wholly or in part within the modern boundaries of Umatilla and Malheur National Forests: Alamo, Greenhorn, Granite, Quartzburg, Red Boy and Susanville. Brooks and Ramp (1939) note the following districts in the project area: Greenhorn, Susanville and Granite. Canyon and Quartzburg are mentioned as "areas" not "districts." The Alamo, New Eldorado, Red Boy and Robinsonville districts reorganized into the Greenhorn and Granite districts. The geology of the area includes a variety of types including Upper Paleozoic, Mesozoic and Tertiary formations. The Cable Cove district is in Grant and Baker counties. Gold was discovered in 1872, but the District did not become very active until the railroad arrived in 1885. Production and activity peaked about 1900 and activity has been sporadic since then.

The form of mining most common since the 1880s is deep vein or lode mining. Lode mining activity grew rapidly in the 1890s and continued until World War II, although at significantly reduced levels from the earlier (1890-1910) period. Lode mining is labor and capital intensive and marked the transformation of mining into large business in Oregon. Tunnels are dug to follow the gold vein underground. The gold is brought to the surface and processed in a stamp mill.

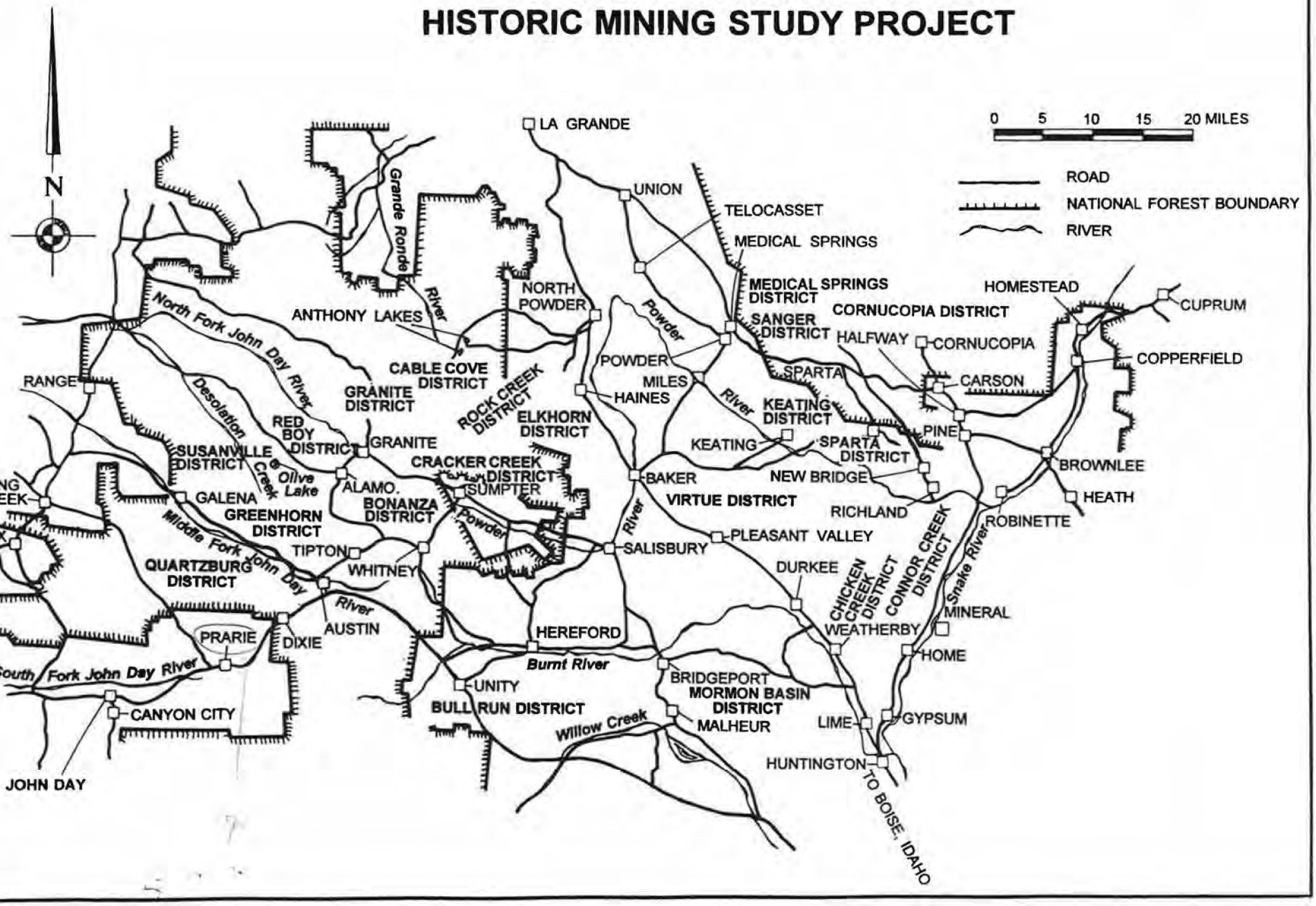
The advent of lode mining is often seen as a more advanced stage of mining than placer mining efforts. Lode or hard rock mining is usually indicative of mine development on a larger scale than placer mines. Typically, hard rock mines also had hoisting works including headframes or hoist engines, excavations including shafts, adits or pits; ventilation or power systems; water delivery

systems; ore transportation systems and administrative and maintenance facilities. Hard rock mines are opened with shafts or tunnels (adits). The ore is mined and later removed from a large opening called a stope. To create a stope the opening and surrounding area had to be supported through timbering or even concrete. Waste rock is dumped and the ore stored until shipped for processing. Miners and prospectors exhausted most of the easily mined gold along much of the North Fork John Day by 1880. As placer mines were abandoned, a few individuals operated underground (lode) mines along the River but these never grew as large or profitable as placer mines. Lode mining required support facilities and one of the first mills was built at Susanville in 1869. Lode mines in the Connor Creek and Cable Cove areas were worked but the difficulty of shipping ore via horseback slowed development. The arrival of the transcontinental railroad in 1885 spurred quartz or lode mining and many camps developed once transportation problems decreased (Anonymous 1941:8-10). Speculative activity occurred until the early years of the 1900s when production began to decreased in 1904.

The Canyon area, including Grant County of the John Day River and drainages north of Bear Creek included a number of lode or quartz mines. At the same time as lode or hard rock mining, some placer activity continued. Interestingly, the first dredge became operational in 1915 and continued until the 1940s (Anonymous 1941:17). The Canyon Mountain Mining (Mountain View Mine) operated until 1914, about 1 mile southeast of Canyon City. A 10-stamp mill was built but operated only a short time (Anonymous 1941:20).

Baker County was established as a mining area by 1870. Access to the county was available from "The stage-road from Umatilla to Boise and Salt Lake, the military road from the Dalles to Salt Lake, and the old emigrant road, with other practicable routes, cross this county." (Raymond 1870:228). By the 1870s the area had been heavily prospected and in Baker County there were 3 arrastras and 3 stamp mills. An arrastra grinds ores by dragging a heavy stone around in a circle. This is a low-technology, low cost way to process ores. A 10-stamp mill was located outside Baker City in 1864 by Colonel Ruckles to handle ores from the Virtue mines. Heavy iron stamps, working mechanically, pulverize ore. After crushing mercury is added to combine with the free gold. Between 1870 and 1880 the shaft of the Virtue went to 800 feet. However, by 1898 the mine was inactive. Another mill was located at Sanger. This single-bed arrastra, built by Colonel Clough was replaced in 1865 with a 5-stamp mill. Later, a 10-stamp unit was built in 1887. (Wagner 1959:23-25).

MINING DISTRICTS MAP
HISTORIC MINING STUDY PROJECT



The Granite Mining District produced over $1,800,000 in gold and silver from lode mining since 1861. The Granite District encompasses the upper part of the North Fork of the John Day River, draining into the west flank of the Elkhorn Mountains. Granite Creek and Crane and Onion Creeks drain the southern part of the District. The major producers were the Buffalo and the Cougar-Independence mines (Koch 1959:1) The Buffalo was discovered by the Beagle brothers in 1879. The La Belleview mine was located and worked by Fred and John Cabell in 1875. Located at the head of Onion Creek, the mine was a consistent producer until World War II (Lindren 1901: 685). Harvey Robbins, Isaac Nail and Isaac Klopp discovered the Monumental Mine in 1876. A 20 stamp mill was hauled in by team. The silver mine produced high quality ore but the cost exceeded the price on the open market (Swartley 1914:139). The Magnolia mine was located in the 1890s north of Granite. By 1899 a 20-stamp mill was working. English investors were disillusioned with the low profits and stopped mining about 1900 (Pardess and Hewett 1914:105). Near the Magnolia was the Ajax mine that produced a small amount but was never very profitable (Parks and Swartley 1916:7).

The Greenhorn District encompasses the eastern part of the Greenhorn Mountain range. The major town was Greenhorn, about 50 miles from Baker. Lode mines included the Ben Harrison Mine discovered in 1896 by Albert Gilliam. The mine operated until 1937 but was never a large producer (Lorain 1938:16). The Red Boy was located in the 1880s by Dan Pinson, a Cherokee Indian. One story of its discovery related by Joe Batty was,

> A packer had a lazy mule that was always causing him problems by falling down or not moving. On a return trip from the Desolation area, the mule skidded or slipped on a large quartz rock. As the packer checked to see that the mule was alright, he noticed a shiny substance in the rock. The packer finished his trip on into Granite, filed for his claim and then staked it in the area where the Red Boy mine is today (Howe 1990(?): n.p.)

Pinson was unsuccessful at working the mine and soon William and Tom Graham, John Eaton and Jack Hanlon operated the mine. Successive owners operated a small scale mine, without great success. In 1893, however, A. G. Tabor, Clark Taber and E. J. Godfrey became interested in the property. The mine did well until the early 1900s (Tabor 1988:2-20). However, in 1905 the use of the site underwent significant change.

> In August 1905, John Thomsen, John Waterman, and Walter Fernald, stockholders in the Red Boy Mine Company, incorporated the Fremont Power Company. The purpose of this power company would be to own and put into operation the property known as Olvie Lake Water Power, then owned by the Red Boy Mines Co., and generate for sale, electric power for all persons desiring to purchase it. It was to be a separate company form the Red Boy and would supply the mining company 500 horsepower of electricity free for three years and 4 months. Then it would furnish the same amount an additional 2 years at $45 per horsepower per year.

> Upon decision of the Board of directors of the Red Boy, the mining operations were shut down for the installation of electrically operated equipment. It was their belief that the new source of power would provide rapid and economical development of the mines, therefore the shutdown would save money in the long run. Operations would be resumed in 1907 when the power plant was completed.
>
> The Fremont powerhouse was completed on time, however, it did not transmit electricity until 1908. As stated earlier, lode mining had begun a drastic decrease in 1903. By the time that the Red Boy mine began operating on electricity with expectations of improved production, it was too late. Technology needed for recovery of gold at that depth was not yet available and the price of gold was not enough to offset the costs (Howe 1990 (?) n.p.).

Another mine in the district was the Bonanza, located in 1877 and operated until 1907. Output was never great (Swartley 1914:188).

The Cracker Creek Mining District includes the lands drained by Cracker Creek and McCully Fork, headwaters of the Power River. This District has also been known as the Bourne and McCully Fork Districts. The primarily producers are the Golconda, Columbia, Taber Fraction, Eureka and Excelsior (E&E) and the North Pole. These mines all cross the North Pole-Columbia Lode. Claims were located during the 1870s but most work occurred between the mid-1890s and the beginning of World War I. The Rock Creek Mining District encompasses the upper part of Rock and Pine Creeks, northwest of Baker. Mines included the Beasley-Elkhorn and the Highland-Maxwell mines. However, the combined output for these mines totaled less than $2 million.

A speculative boom existed from 1899 to 1903. The mines of eastern Oregon were slow to recover from the bust and did so only in the 1930s (Anonymous 1941:8). In addition to mining activity in the Blue Mountain region, there were other mining districts east of the Cascades. The Pueblo Mountain District is in southern Harney County. The Harney District is in northern Harney County. The High Grade district located in southern Lake County, near the California line. The Howard District located in northeastern Crook County and the Ashwood District in Jefferson County were all gold providing areas.

1929 marks the beginning of sporadic mining that lasted until after World War II. Some interest in mining resulted from 1935 legislation that raised the base price of gold from $20 an ounce to $35 an ounce. The output for the years 1935-1941 averaged approximately $3 million per year. (Howe (1990?): n.p.) After 1935 the Federal government played a more active part in stimulating production throughout the country. This increased interest in mining ended in 1943 when President Roosevelt ordered the closure of all gold and silver mines except those that also produced strategic minerals for the war effort. Since World War II, Oregon, like most of the

western United States, struggled to deal with new and changing roles of the federal government. Very few lode mines have operated since World War II. As conservation and environmental concerns grew, regulations on gold, silver, copper mining as well as agricultural pursuits such as ranching and farming, were implemented. This change, as well as innovative federal programs, changed the western U.S. The cycles of boom and bust have remained, as the state remains partially dependent upon natural resources usage for commercial development. However, tourists have proven to be a new, growth industry that requires conservation of scenic resources.

Historic Contextual Themes

The historic activities identified above reflect the historic process, human behavior and activities over time. Evidence of the use of landscapes by individuals provides signs of relationships between people and their environment. This then, becomes the historical, architectural and archaeological record. The broader themes described below provide a way to understand the relationship between nature, society and culture. Each theme is briefly listed below with a description of the type of activity that occurred in the Study Area applicable to each theme. These themes illustrate the contextual components and provide broad foundations for use in the research design.

Utilization of the Resources of the Environment

Early activities of the historic period are closely linked to this theme. Natural resources provided subsistence. Resource development and extraction helped inspire early exploration and settlement. Earliest resource developers were associated with fur trappers and traders seeking to exploit the fur resources. They were followed by prospectors and miners seeking metals, farmers and ranchers seeking fertile soils and grasses, and later by loggers concerned with harvesting timber for construction and fuel.

Developing Transportation Networks and Communication Networks

Indian transportation networks provided the earliest trails. Travel routes were designed to provide access to plant and animal resources and to secure trade goods. Euro-american interest expanded upon Indian routes as trappers and traders followed previously established paths and developed new paths. The migration of the 1840s further identified overland routes that connected to the eastern and midwestern United States. After the discovery of gold in California, travel routes connected Oregon with California through land and water routes. Exploitation of precious metals required new routes to access mining camps and create the necessary support networks of people, provisions, mail and technology. Wagon roads and railroads supplemented previous routes. Placer and hydraulic mining required the development of water transportation systems including ditches, flumes, dams and reservoirs. Roads, railroads, stage routes, bridges etc. indicate routes across the landscape that are developed and utilized by settlers. These routes provide information on destination, access and transportation capabilities at a given time.

Communication network sites may be related to the transportation networks. In addition, power lines, telephone lines, telegraph lines, and post offices would also fall into this category.

Developing Commercial Networks

Commercial networks are connected to resource utilization and transportation networks. This theme directly relates to the World System of economic development referenced in the Research Design. Small ranch and mine communities may become transportation and commerce centers that are "colonies" connected to the larger world economic system. These colonies act as intermediary service providers by providing goods to the local market and selling locally produced materials (gold/agricultural products) to a larger market. The development of commercial networks is critical for the Study Area because if not for the resource exploitation by the world system the area may not have been settled.

Patterns of Human Habitation and Migration

Individual sites may provide information about patterns of human habitation and migration. This theme is directly tied to transportation and resource utilization. Habitation patterns provide evidence of locally available materials, materials available by import and the maturation process of local communities over time.

Section 3
Property Types and Registration Requirements

PROPERTY TYPES

INTRODUCTION

Central to all cultural resource studies is the historic context, and key to the context are its three elements: time, place, and theme as described in the previous pages. Linkages between the context and the resources are formed through property types that share physical or associative characteristics or both. Property types offer the first level of analysis of resources recorded in field surveys because they are defined in ways that reflect the known or expected characteristics of the field resources. Beyond that, property types also describe the physical characteristics and associative values that a resource must possess to be considered eligible to the National Register as a representative of the property type. The historic context and its associated property types function systemically to support the decision-making process in cultural resources management.

Property types also describe the physical and associative values that a resource must possess to be considered eligible to the National Register of Historic Places. The property types are classes of cultural resources. We start with basic descriptions of the components of a site and of a site itself. We will then describe the property types which can be expected in this region.

APPLICATION

Historical and historical archaeological properties are generally classified as sites or as districts. Buildings, structures and objects are used mainly for defining components or features of sites and districts. For NRHP purposes a site is the location of a significant event or of historical human activity. The location must possess historical, cultural, or archaeological value. A district is a grouping of sites that are linked historically by function, theme or physical development. The relationship between sites and districts is important when identifying boundaries. When sites within a district are not contiguous, the space between the sites is not significant, and the sites have a direct relationship through cultural affiliation, related elements of a pattern of land use or historical development. This is a property that is considered a discontinuous district (National Register Bulletin 36, 42, 16A). A discontinuous district is defined when:

Elements, such as sites, are spatially diverse.
Space between the sites has not been demonstrated to be significant as it relates to the district.
Visual continuity is not a factor.

Contributing or noncontributing resources meet the following guidelines (National Register Bulletin 36).

> A contributing site, district, building, structure or object adds to the historical associations, historic architectural qualities or archaeological values for which a property is significant. A noncontributing site, district, building structures or object does not. A contributing resource may have the following characteristics:
>
> Present during the period of significance
> Relates to the documented significance of the property
> Possesses historical integrity or is capable of yielding important information about the significance of the property

Landscape features such as gardens may be classified as a site or as a district. Landscape features associated with archaeological properties are counted as sites.

Donald Hardesty (1993) divides historic properties into descriptive and interpreted categories. Descriptive properties are "visible geographical clusters of material remains without reference to interpretation such as time, use or cultural meaning. Archaeological properties of this type of mining district usually can be classified hierarchically into features, feature-complexes, sites and site-complexes." Interpreted properties are linked to historic contexts which require interpretation of their function and how (or if) they fit into patterns and/or systems of cultural processes."

> Features ----> feature complexes ---> feature systems
>
> Sites ----> site complexes ----> site systems
>
> Districts ---->district systems .---> landscapes

Artifact: At the lowest level of the hierarchy is the individual artifact. This consists of single, portable items of manufacture or use. These can range from a lithic waste flake to a finished complex multi-element tool such as a harpoon head. In the historic realm they may refer to a nail or a tractor. It can also include ecofacts such as bone, shell, or utilized plant remains. The primary associative characteristic they share is the demonstrable effects of human use or modification. Artifacts can occur as isolated items or as parts of larger entities such as features or sites. Single artifacts are never considered eligible to the NRHP. Their importance is in the interpretation of sites.

Feature: At the next level are features. These consist of non-portable objects or clusters of associated portable objects which have demonstrable human use or modification. Prehistoric

features can include items such as hearths, storage pits, structures, rock alignments, or rock art. Historic features include such things as prospect pits, privy pits, standing or collapsed buildings, adits, shafts or clusters of related artifacts. Concentrations of portable artifacts or clusters of associated artifacts can be considered as subsets of the class of features. Groups of features and artifacts within a single site can often be associated into an activity area, as they are the result of one event. Binford (1983:124), for example, illustrates a series of four hearths, a windbreak, bone piles, and a distribution of artifacts which all resulted from the butchering of a number of caribou at one location within a larger site. Features can occur as isolated manifestations or as parts of sites. An isolated feature would rarely be considered eligible.

Feature-Complexes: Geographical clusters of features that may be associated with different activities and time periods. Most of the features recorded in mining districts are associated with feature-complexes (Hardesty 1994).

Feature-Systems: Features that are associated with distinctive human activity taking place within the same time period (Hardesty 1988). Typical feature-systems in mining districts include ore procurement systems, mine hoisting systems, rock crushers, stamp mills, cyanide leaching systems, etc.

Site: National Register Bulletin 15 defines a site as "the location of a significant event, a prehistoric or historic occupation or activity, or a building or structure, whether standing, ruined, or vanished, where the location itself possesses historic, cultural, or archaeological value regardless of the value of any existing structure" (National Register Bulletin 15). Archaeologically, sites have been defined on the basis of high density clusters of artifacts or as "places at which traces of past human activity are to be found." (Fagan 1985:89-99), or by many other criteria. Sites may be the result of a single event or the cumulative debris from many individual events over a long period of time. To some extent the definition of a site is dependent on the research question one is asking and the methodology used to approach it. Sites may contain more than one activity, but most sites can be characterized by a single predominant type of activity. One or more spatially and functionally related feature-systems will equal a site.

Site Complexes: Clusters of sites within a larger geographical region such as a mining district.

Site Systems: A geographical cluster of sites associated with activities or events that are linked together as part of an overall strategy (Binford 1983:117).

Districts: Districts include areas where groups of interrelated sites, features and artifacts are found that rely upon each other for associative and interpretive purposes.

Mining districts were created by miners and often represent the first stage of local government. They are generally vague in purpose and represent a temporary division and organization. A mining district may in fact be an historic district. However, they need not be synonymous.

Extraction, Beneficiation and Refining Property Type

Mining properties may contain a variety of resources. Evaluation of these resources can be organized around the processing of ore into metal. Three basic functions are identified for organizational purposes:

1) Extraction of the ore from the earth;
2) Beneficiation or upgrading of the ore's value and
3) Refining that further enhances the value of the ore.

A property may evidence one, two or all three functions.

Because of the resources present in the North Fork John Day Ranger District and the Long Creek Ranger District, the property types reflect National Register Bulletin 42 guidance but have been modified to better fit the contextual themes and on-the-ground resources. The three property types for these areas of Oregon are:

Mine Exploration and Associated Sites and Features
Mine Development and Associated Sites and Features
Related Property Types

MINE EXPLORATION AND ASSOCIATED SITES AND FEATURES

Description. Resources associated with mine exploration and mine development may be the same or very similar. Mining related properties may have been used for exploration purposes and then utilized as part of a development plan. A major difference between exploration and development sites relates to the related property types associated with mine development such as workers housing and circulation resources.

The specific properties associated with mining exploration in the Study Area can occur as individual resources (i.e., sluice box) or as part of a functionally based cluster (i.e., mine complex) associated with a mining based historic activity or the property may include linear features such as roads, trails or rights-of-way. These resources may occur as individual sites or in collections that could be historic districts. Many of the mining properties associated with this property type may be characterized according to basic function: extraction of the ore from the earth; beneficiation or upgrading of the ore to increase its value in some type of processing plant and refining or

converting the metal into a state of purity suitable for industrial, manufacturing or commercial use. The relevant site types related to this property type and previously recorded in the Study Area include: prospects; waste rock dumps/tailings; trenches; bulldozer cuts; trash dump; claim post/sign; mining debris; isolates associated with mining exploration sites; and other exploratory sites. See Appendix I.

Structures associated with the mining process can include mines, assay offices, milling plants, sorting houses, offices, tipples, mills and smokestacks as well as ancillary structures such as storage sheds. Generally the buildings and structures or their remains will be vernacular in style and exhibit no particular evidence of architectural or engineering expertise. Rather, they were built to meet specific needs of the particular exploration operation. The structures will be made of brick, stone, iron, steel, wood/log and concrete. Construction methods would include stone or brick masonry, stud frame, poured or cast concrete, steel truss, timber frame, horizontal board sheathing plus other methods of construction. Foundations may vary from earth, stone to perhaps concrete. Size of structures will vary from quite small to large depending upon the scope and type of operations.

Individual mining/exploration sites may have one or any combination of structures, buildings or their vestiges that functioned as part of a mineral extraction or refining system. The individual buildings may exhibit evidence of modification and expansion over time as the needs of the owner/operator changed. Some evidence of planning and adaptation to the local topography will be present because of the necessity of locating the mine near an ore deposit or a water system near a spring or stream bed. Topography, ore deposits, and water availability determined the spatial arrangement and location of the mines or prospect pits and associated features.

The condition of these resources may vary from very good to badly deteriorated and abandoned buildings to their archaeological remains. The archaeological remains of these buildings and structures may vary from nearly intact ruins to traces such as leveled building pads or scatters of mining or industrial refuse.

Significance. The mining exploration related resources, either individually or as part of a cluster in the Study Area may be significant under Criteria a or d in that the resources reflect the attempted establishment of a mining based economy in the Mining District. The period of significance spans the period from 1848 to 1943. These years represent the period from the beginning of local mining development through the period of placer mining development associated with the Depression era of the twentieth century.

The resources associated with this property type and the context are considered significant at the local level under the areas of significance of commerce or industry.

MINE DEVELOPMENT AND ASSOCIATED SITES AND FEATURES

Description. The specific properties associated with mining in the Study Area can occur as individual resources (i.e., sluice box) or as part of a functionally based cluster (i.e., mine complex) associated with a mining based historic activity or the property may include linear features such as roads, trails or rights-of-way. These resources may occur as individual sites or in collections that could be historic districts. Many of the mining properties associated with this property type may be characterized according to basic function: extraction of the ore from the earth; beneficiation or upgrading of the ore to increase its value in some type of processing plant and refining or converting the metal into a state of purity suitable for industrial, manufacturing or commercial use. The relevant site types related to this property type and previously recorded in the Study Area include: placer mining, deep industrial mines, rat-hole underground mines; surface mines (adits/pits), mill sites; water engineering sites; and other development sites. See Appendix I.

Structures associated with the mining process can include mines, assay offices, milling plants, sorting houses, offices, tipples, mills and smokestacks as well as ancillary structures such as storage sheds. Generally the buildings and structures or their remains will be vernacular in style and exhibit no particular evidence of architectural or engineering expertise. Rather, they were built to meet specific needs of the particular mine operation. The structures will be made of brick, stone, iron, steel, wood/log and concrete. Construction methods would include stone or brick masonry, stud frame, poured or cast concrete, steel truss, timber frame, horizontal board sheathing plus other methods of construction. Foundations may vary from earth, stone to perhaps concrete. Size of structures will vary from quite small to large depending upon the scope and type of operations.

Individual mining/milling sites may have one or any combination of structures, buildings or their vestiges that functioned as part of a mineral extraction or refining system. The individual buildings may exhibit evidence of modification and expansion over time as the needs of the owner/operator changed. Some evidence of planning and adaptation to the local topography will be present because of the necessity of locating the mine near an ore deposit or a water system near a spring or stream bed. Topography, ore deposits, and water availability determined the spatial arrangement and location of the mines or prospect pits and associated features.

The condition of these resources may vary from very good to badly deteriorated and abandoned buildings to their archaeological remains. The archaeological remains of these buildings and structures may vary from nearly intact ruins to traces such as leveled building pads or scatters of mining or industrial refuse.

Significance. The mining related resources, either individually or as part of a cluster in the Study Area may be significant under Criteria a or d in that the resources reflect the attempted

establishment of a mining based economy in the Mining District. The period of significance spans the period from 1848 to 1943. These years represent the period from the beginning of local mining development through the period of placer mining development associated with the Depression era of the twentieth century. They may be eligible under Criterion b if the resource(s) can be clearly tied to the active career of a figure of importance in local mining history. Association only through investment is not considered a close enough association for Criterion b significance. The resources may be considered eligible under Criterion c only if enough of the structures and features associated with the extraction, beneficiation or refining processes are present to clearly document and interpret the activities that took place at the site.

The resources associated with this property type and the context are considered significant at the local level under the areas of significance of commerce or industry. Mining properties may include related buildings, structures or systems that supported mine operations. These may range from a simple miner's cabin to an entire community. Housing and support facilities may be located on or near mining properties as may road and transportation networks.

RELATED PROPERTY TYPES

Description: The key features types that may be encountered in the Study Area may include tent platform/pod (with trash); building platform/structure (with trash); habitation site with remains of mining debris or feature; domestic household sites; transportation sites; and service sites. The specific architectural and archaeological features associated with workers' housing may occur as individual (i.e., dugout) or as part of a cluster (i.e., building vestiges, cellar, and domestic trash concentration). These properties individually and collectively provided housing to the various workers and the surrounding mines. The workers' housing may have included boarding houses, dugouts, houses, and other domiciles in their various forms. Those previously recorded in the Study Area include: tent platform/pad (with trash); trash dump; building platform/structure (with trash); habitation site with remains of mining debris or feature; and domestic household site. This property type contains descriptions for other key features including domestic and circulation system features. See Appendix I.

Workers Housing. A variety of factors influenced the location, types, and numbers of related properties. Most were concentrated in a non-uniform pattern except for the streets obvious in downtown communities once or presently in existent. Some domiciles were situated nearer to the mines which were closer to the edges of the site. The number of resources at any specific locale varied from single building vestiges to multiple remains. The structures were made of soil, brick, stone, iron, steel, dimensioned lumber, wood/log, and concrete. Construction methods included stone masonry (primarily for foundations), timber or wood frame, wood frame and canvas, or other methods of construction. Foundations varied from log or lumber to earth, stone, and concrete. The size of structures varied from quite small to large, depending upon the scope and activity housed in it historically. The individual buildings may exhibit evidence of modification

and expansion over time as the needs of the owner/resident changed. Generally, the buildings were vernacular in style and the extant remains exhibit no particular evidence of use of architectural expertise; rather they were built to meet specific needs and appear to be adaptations of commonly accepted late nineteenth or early twentieth century buildings, primarily gable-roofed wooden residential buildings. Other adaptations may be reflective of the high altitude and seasonally heavy snow fall.

The condition of these resources may vary from good to moderately to badly deteriorated and abandoned structures to their archaeological image. Most of the archaeological properties are building vestiges that vary widely in size and complexity. Some are no more than the ephemeral remains of a tent platform. Others are the much larger, more intricate remains of boarding houses or hotels.

Infrastructure Resources. The infrastructure of water sources and lines, telephone and power lines, and water diversion or transport structures (ditches) are included in this property type and share several common characteristics. First, the resources are associated with basic municipal service for the residents of and visitors to the local community. These resources tended to be linear and were either on-grade, buried, covered, or elevated above grade. They are all engineered structures and were made from concrete, rock, copper wire, or wooden poles.

Circulation Resources. Any roads, streets, alleys, and pathways in mining or domestic areas are included in this property type and share several common characteristics. First, the roads were the internal linkages that cemented the local community together and to the larger region and beyond. These linear resources may be unique in their association with the community (i.e., alley or side street) or may have been shared with much larger transportation systems. They are all engineered structures and the roads have materials that include dirt, stone and gravel, road oil, or very limited use of asphalt or concrete. In addition, railroad beds provided linkage between the settlements and the other communities in the Study Area as well as the region and state.

Workers Housing Significance. The workers' housing properties in the Study Area, either individually or as part of a cluster, are significant under Criteria a, b, c, or d (36 CFR 60.4) as reflections of the establishment of mining related settlement in the area. The period of significance spans the period from 1848 to 1943. These years represent the period from the beginning of the boom, settlement of the communities, the beginning of local commercial development until the mines were closed during World War II.

The resources associated with this property type are considered significant at the local and/or state level under the areas of significance of architecture, engineering, exploration/ settlement, and/or commerce. The Criterion b significance is associated with the presence of locally important labor movement leaders or leaders in mining technology. The remains of similar figures' residences and/or offices, if found, may be significant as the place where these individuals

made contributions to the labor movement or business development of mining in the Study Area and Oregon.

Individual residential resources or clusters of residentially related properties can have significance under only one Criterion, or may be eligible under more than one Criterion. For example, some building vestiges may illustrate and contain information about ethnicity or gender and are representative of the built environment associated with workers' housing. The properties making up this type include standing structures, the archaeological remains of structures, and archaeological features such as domestic trash concentrations or privy pits. The properties may be significant under Criterion a because they are associated with and illustrate variability and change in workers' housing during the period of significance. The properties also may be significant under Criterion c as examples of variability and change in architectural styles and construction methods. The property type may represent construction methods and styles of vernacular architecture imported to the town as described above or also may reflect adaptation of building layout, size, and use to local conditions.

For a workers' housing property to be considered eligible under Criterion d it must be archaeologically interpretable and be able to offer significant information related to the Problem Domains discussed above. Those questions are about the evolution of satellite communities, comparisons with neighboring towns, the geographical scale of the social and economic networks in which the community participated, or offer comparative data on occupational, ethnic, gender and class differences, family role, and the like. A number of questions can be examined that have been defined in previous studies of community and western mining. For a residential related resource to be considered eligible under Criterion d it must be an archaeologically interpretable resource in the Survey Area and be able to offer significant information as explained below.

Infrastructure Resources Significance. The community infrastructure resources are considered to be potentially significant under Criteria a, c, or d with the areas of significance being transportation, exploration/settlement, commerce, communication, or engineering.

Circulation Resources Significance. Circulation properties are considered to be potentially significant under Criteria a, c, or d with the areas of significance being transportation, exploration/settlement, commerce, or engineering.

MINING LANDSCAPES

Researchers recognize the potential for the Study Area to contain numerous historic mining landscapes. The landscapes can form a bridge between the Problem Domains of Community and Technology and such need to be defined as another property type. Mining landscapes in general are considered by National Register Bulletin 30 (1990) to be a subtype of rural historic landscapes (1990:3). A rural historic landscape is defined in the same document as "a geographical area that

historically has been used by people, or shaped or modified by human activity, occupancy, or intervention, and that possesses a significant concentration, linkage, or continuity of areas of land use, vegetation, buildings and structures, roads and waterways and natural features" (1990:1-2). The name "rural" should not be taken to imply a pastoral or farming landscape; rather, it refers to a "vernacular" landscape in contrast to a "designed" landscape. Unlike designed landscapes, vernacular landscapes are not intentionally created by human plan but evolve from repeating the same human practices or activities over a long period of time. The historic landscape in general should be distinguishable from its surroundings by a unique pattern of spatial organization, concentration of historic characteristics, and evidence of historic development (National Register Bulletin 30:2). As a variety of vernacular historic landscape, mining landscapes can be identified and interpreted within the same framework. The key research questions to be asked about mining landscapes, therefore, are organized around the processes and components that have been responsible for the existing patterns.

According to NRHP guidelines, rural historic landscapes such as mining landscapes can be treated as historic districts (National Register Bulletin 30:2). The reasons for doing so are inherent in the concept of historic landscape, which stresses not only the idea that it is an "emergent whole" that is more than simply the sum of its parts but also that the historic landscape is a reflection of the technological and social processes that "transform" nature into a human creation (Melnick, 1984).

LANDSCAPE PROCESSES

Several questions about the processes responsible for the formation of a mining landscape can be identified. Melnick (1984:2) identifies three general landscape processes: land uses and activities, patterns of landscape spatial organization, and response to natural environments. To these, the National Register Bulletin adds cultural traditions (National Register Bulletin 30:3). For the Study Area perhaps the most evident landscape process is the evolution of land use as a human response to the natural environment, particularly the gold deposits. Several questions can be asked about land use that are tied directly to the mining technology and mining community research questions articulated earlier. For example, was there evidence of significant changes in land use practices over time and how did those changes reflect the changes in the local mining community and mining technical practices? Did changes in mining technology result in significant changes in patterns of land use over time? Did boom-bust mining cycles affect the continuity of land use patterns? To what extent are the physical manifestations of particular mining cycles presented in the current landscape? What impact did tourism in the twentieth century have upon land use patterns and activities in the Study Area landscape? Brief review of some of the site types and sites recorded make clear the potential connection between the cultural resources and the landscape. Underground mines left prominently visible and variously colored waste rock dumps behind, often burying the remains of earlier mining efforts. In that way, then, the mining landscape can be viewed as a totality of sites and features related to a particular type of mining practice and thus not easily assignable to any one time or group of occupants. Although not as

visible, the same patterns can be discerned for settlement at locales such as placer camps along the John Day River.

The spatial organization of mining landscapes is expected to be patterned by the geographical distribution of the ore body mined, water, supporting resources such as timber, and relationships to activity centers such as towns and circulation networks that held them together (Hardesty, 1988a:106-108). As such, then, these considerations also help define the mining landscape as a possible property type associated with mining technology and community development. As a property type related to mining technology and community, however, landscape also presents the opportunity to ask other questions about change and continuity in the physiographic character of the landscape. To what extent does physiographic change in these natural landscape features reflect mining that occurred during a particular time period?

The fourth factor that may have affected the evolution of the Study Area mining landscape and added to its definition as a property type was cultural tradition. The role of a particular ethnic group in landscape continuity or change, for example, should be considered. What role, if any, did ethnic Chinese play in maintaining the practice of mining placer deposits in the Study Area landscape in the face of large-scale and industrial underground lode mining? To what extent did Native Americans continue traditional practices of using natural resources in the Study Area landscape? Can traditions of vernacular architecture or mining be associated with particular ethnic groups within the Study Area? As such then, the role of landscape as a property type related to ethnicity in the history of the Study Area becomes apparent, thus adding another level of consideration to the research questions regarding ethnicity, ethnic relation, and ethnic segregation.

DESCRIPTION

The four landscape factors that influenced the evolutionary processes outlined above were expected to operate with the seven key components of a landscape to form the existing Study Area mining landscape. Melnick (1984:18) identifies the principal components of rural landscapes as circulation networks, boundary demarcation, vegetation related to land use, cluster arrangements, structures, and small-scale elements. The National Register Bulletin on rural historic landscapes adds archaeological sites (National Register Bulletin 30:6). Note, that to-date, no landscapes have been recorded in the Study Area.

A key research question about mining that has direct linkages to landscape was the nature of traffic flow - the movement of people, supplies, and mined resources. The circulation networks then serve as the physical manifestations of the connections between the Study Area, the larger region and the "world systems." Preliminary examination of the previously recorded sites suggests that automobile roads, ore car runways and tramways moving ore out of the mines, railroad systems, pedestrian and equestrian trails, and modern bulldozer roads providing access to mining

areas were included as parts of the transportation network within the region. As networks, then, the transportation systems become an amalgamation of the individual transportation-related resources much as the landscape of waste rock dumps and mill tailings becomes the largest expression of deep industrial mining.

Variability and change in vegetation patterns is another avenue that can be used to document and understand the evolution of the Study Area mining landscape. The vegetation pattern that existed before 1859 must be reconstructed and used as a standard against which change later in time can be measured. Certainly, one possible change are the vegetation types in plant communities that have colonized mine waste rock dumps or mill tailings. Another is the documented change that took place as the wood choppers scoured the hills for wood and lumber. These changes then are part of the landscape process directly related to Nineteenth century mining and construction practices.

Another reflection of the evolution of the Study Area mining landscape was variability and change in geographical clusters of buildings, structures and objects. Architectural and archaeological images of residential settlements, mines, and mills are common clusters in mining landscapes. Clusters, for example, often are arranged around the entrances to mines and include offices, changing rooms, engine houses, headframes, blacksmith shops, machine foundations or machinery, ore car runways, access roads, mine waste rock dumps, and trash dumps. Chronological changes in uses, meanings, forms, and geographical arrangement of clusters then offer another avenue to understanding variability and change in the mining technologies and community development of the Study Area.

Finally, mining landscapes may have small-scale elements such as claim markers, culverts, retaining walls, footpaths or fence posts that contribute to its character. The elements may be associated with land use patterns, cultural traditions, spatial organization, boundaries, and the like. For this reason, the evolution of the Study Area mining landscape may be reflected in variability and change in the uses, meanings, forms, and geographical arrangement of these elements as the mining community and mining techniques evolved during the historic period.

The role of archaeological sites as part of the Study Area landscape or the Study Area landscape as an accumulation of archaeological sites is something of a circular question, but the landscape concept in this case offers a way to examine and interpret the spatial patterning and distribution of the sites, both previously recorded and those that may be recorded in the future.

National Register Evaluative System For Mining Landscapes

The evaluation of mining landscapes as a historic district property type is based upon the same National Register criteria that are used for other property types but with the following considerations:

Criterion a. The extent to which the landscape illustrates or is associated with key themes or events in mining technology and community is evaluated under Criterion a. Several key "transformational episodes" in the history of the Study Area have been responsible for creating the mining landscape; the mining landscape property types described above are strongly associated with and illustrate the key episodes. The episodes include mine exploration and small scale surface (placer) mining; the industrial mining landscape (both underground and placering); and the reworking of mine waste rock dumps and mill tailings and the use of cyanide mills. Each of the landscape types appears to be equally significant under Criterion a. The most important issue, therefore, is the surviving integrity of the landscape as representative of mining.

Criterion b. The extent to which the existing landscape illustrates or is associated with important persons is evaluated under Criterion b. The most important issue are the strength of the association to an important personage and the surviving integrity of the landscape.

Criterion c. The extent to which the existing landscape illustrates and is associated with patterns or types of mining technology or architecture is evaluated under Criterion c. The most important technological patterns are mine exploration, small scale surface, deep underground industrial mining, cyanide milling, and mechanized open pit or placer mining. The most important issue, therefore, is the surviving integrity of the landscape property types.

Criterion d. The extent to which the existing landscape contains information that answers key research questions is evaluated under Criterion d. The information value of the Study Area's potential landscapes is derived from the research issues identified in Section 4.

Section 4
Evaluation of Individual Mining Properties and Districts

National Register of Historic Places Eligibility

The property types described in the preceding pages are used to organize the features and features types into an organizationally consistent scheme. This allows the effective and consistent evaluation of the resources that are recorded. This approach allow association of the features with the historic context and maintains the appropriate linkages from resource to context throughout the evaluation process. The resources will also be evaluated for their integrity.

Managers should assess historic cultural resources for integrity relative to visibility and focus. Seven elements of integrity are identified by the National Register of Historic Places (NRHP): location, design, setting, materials, workmanship, feeling and association. Considerations of "integrity" depend upon the National Register criterion used to evaluate significance and upon whether the property is architectural or archaeological. The specific ways in which the elements of integrity may be applied to the property types are discussed below. When assessing the integrity of a mining property or mining associated properties it is critical to remember that the property should be evaluated individually as a potential resource within a district. Although individual components may appear to lack distinction, the combined image of the separate components may enable the property to provide a collective image of a historically significant mining operation. The whole of the property is thus greater than the sum of its parts.

The integrity of mining related properties often involves not so much the condition of extant buildings, but rather the degree to which the overall mining system remains intact and visible. Evaluation of integrity requires a holistic outlook that allows all the component parts of a mining system to be considered. If clear physical evidence of a complete cohesive system remains intact, deterioration of individual aspects of the system may not eliminate the overall integrity of the resource.

Architectural Properties

If standing buildings or structures are believed to be significant under either Criteria a or b, they are assessed with an emphasis upon the presence or absence of the historic fabric or visibility. Visibility of standing structures and buildings is defined as those resources that have maintained association, feeling, and setting. In addition, the building must possess at least some elements of workmanship, materials and design, the elements that constitute focus. Location is not considered overly important, as buildings were moved in many mining camps; indeed some were designed specifically to be moved by being built on skids or as knock-downs. If the building has been

moved to a location that denigrates the feeling, or puts the building in an inappropriate setting, it is considered to have suffered a serious loss of integrity.

If the standing building or structure is considered to be significant under National Register Criterion c, the elements of integrity listed above under Criteria a and b for focus may be even more critical. Loss of these elements impairs the ability of a property to convey its significance so that it would not be considered eligible for inclusion in the NRHP. The integrity elements of setting, location and feeling are considered to be less important, and association is the least important, except in the case of roads. Because roads served as linkages between various mines and settlements, they must contain a relatively high associative value.

Archaeological Properties

National Register Bulletin 42 approaches information content in a broad manner that breaks with traditional approaches focussed purely on subsurface archaeological deposits. The emphasis is on identifying the resource's ability to answer important research questions. "The research questions should be important and derived from a scholarly field or fields. . ." (Noble & Spude 1992:17). Those questions are then tied to the evaluation of specific resources through data requirements or needs compared to the data content of the resource. Put simply, not only must the resource have archaeological integrity and hold data, but also the data must be of a kind that can be used to answer the important questions. Without the association between the data and questions, that data has no meaning.

CONTRIBUTING AND NON-CONTRIBUTING ELEMENTS TO HISTORIC DISTRICTS

The features in the Study Area should be evaluated and recommended for eligibility as individual resources and as contributing or non-contributing parts of potential historic districts. Archaeological and documentary data will provide the necessary information for the evaluations when combined with the property type analysis. The evaluations may lead to the recommendation that no elements of any site are individually eligible to the NRHP. However, when viewed as a district, the site may be a significant collection of features that makes its determination as eligible to the NRHP appropriate. It may be determined after recordation and evaluation, that time, material scavenging and vandalism have affected the material remains of the resources. If few of the individual features retain much in the way of physical integrity and, by themselves, would not be eligible under any criterion, they may be eligible as part of a district. As part of a district, most of the individual features may be evaluated through archival and documentary information, photography, and surface and subsurface archaeological investigations, and each resource then has the potential to provide a portion of the larger picture. By making use of the small pieces of information available from each of the contributing elements in any potential Study Area Historic District, it will be possible to produce a significant amount of information.

Contributing buildings, sites, structures or objects add to the historic architectural qualities, historic associations or archaeological values for which a property is significant, because: (1) it was present during the period of significance and possesses historic integrity reflecting its character at that time or is capable of yielding important information about the period; or (2) it independently meets the NRHP criteria. Historic properties inventoried that do not meet these general guidelines will be recommended as non-contributing elements.

Landscapes

Landscapes often present a unique situation. A landscape need not be pristine to be significant. In terms of nomination to the NRHP, most landscapes are defined as historic districts and follow the process outlined previously.

Decision Rules for NRHP Eligibility

Appendix I contains a summary of many recorded sites in the Study Area and recommendations for management. In order to bring the significance evaluations into better focus a set of guidelines is presented for historic properties. These guidelines are designed to provide managers with a framework for evaluating sites utilizing the context and research design in this document. These guidelines are not immutable and are not intended to replace or circumvent the established State Historic Preservation Office/Advisory Council review and evaluation process. Individual cultural resources must be judged ultimately on the basis of their own research merits.

Two classes of sites are identified: those sites that are "generally eligible" and those sites that are "generally ineligible" for National Register of Historic Places inclusion. "Generally eligible" sites are those which either meet the registration requirements for architectural resources described above or have the highest probability of furnishing data that addresses specific research themes or problem domains defined later. "Generally ineligible" sites are those with limited representativeness of their property type, often through loss of integrity or with limited or no research potential.

Types of historic sites considered "generally eligible" for nomination to the NRHP include:

NON MINING RELATED SITES

These sites are mentioned because they may be found in conjunction with mining related sites or in proximity of mining related sites. These guidelines are to help U.S.F.S. staff and contractors evaluate sites that have ties to the historic context developed for this document.

Sites associated with the fur trade, early exploration, and pre-1880 military activities

Justification: Physical remains related to these themes and eras are rare.

Original homestead or ranching structures

Justification: Original rural settlement structures are not common. Such structures must retain good integrity of original design, materials and basic construction.

Homestead settlement sites which are particularly representative of site classes

Justification: National Register Criterion a: homesteads are associated with a broad pattern of history; Criterion d: homesteads may be likely to yield information important in history. National Register eligibility is used here as a management tool to identify a sample of homestead sites which are appropriate for preservation or data recovery. Sites in this category will be identified through both archival and field research and will represent particular aspects of the homesteading phenomenon, such as ethnicity, economic base, period of settlement and success or failure of the settlement. Such sites must retain basic architectural or archaeological integrity and, if archaeological, contain sufficient surface and subsurface remains to represent the human activities and material culture of the site buildings or occupants.

Sites which contain unique or outstanding examples of architectural styles, periods, construction techniques, materials, or craftsmanship

Justification: National Register Criterion c. Sites in this category may be associated with any historical theme or era.

MINING RELATED SITES

Sites which exhibit historically important engineering features or industrial processes

Justification: Sites will provide important information about the technology and operation of mining in the Study Area. National Register Criterion a: mining sites are associated with a broad pattern of history; Criterion d: mining sites that may be likely to yield information important in history. National Register eligibility is used here as a management tool to identify a sample of mining sites which are appropriate for preservation or data recovery. Sites in this category will be identified through both archival and field research and will represent particular aspects of the mining phenomenon, such as ethnicity, economic base, new technological innovations or success or failure of the mining operation. Such sites must retain basic architectural or archaeological integrity and, if archaeological, contain sufficient surface and subsurface remains to represent the

human activities and material culture of the site buildings or occupants. These may include deep industrial mines, mill sites and any others that maintain integrity.

Worker's housing sites which are particularly representative of site classes

Justification: National Register Criterion a: worker's housing is associated with a broad pattern of history; Criterion d: homesteads may be likely to yield information important in history. National Register eligibility is used here as a management tool to identify a sample of worker's housing sites which are appropriate for preservation or data recovery. Sites in this category will be identified through both archival and field research and will represent particular aspects of the domestic phenomenon, such as ethnicity, economic base, period of settlement and success or failure of the settlement. Such sites must retain basic architectural or archaeological integrity and, if archaeological, contain sufficient surface and subsurface remains to represent the human activities and material culture of the site buildings or occupants.

Types of sites regarded as generally ineligible for NRHP inclusion are:

NON MINING RELATED SITES

Isolated agricultural sites of the post-1900 period

Justification: These sites contain little cultural information and their location and physical characteristics are generally fully represented in site recording. Care should be taken to ascertain whether sites are part of settlement sites and whether windmills or other equipment may be rare or unique.

Settlement sites with poor integrity

Justification: Hundreds of settlement sites may exist that are not particularly valuable as representatives of the site type or any site subtypes. Identification and protection of selected intact sites will preserve the archaeological data base. Care should be taken to ascertain whether particular sites are rare representatives of site subtypes or whether the sites are associated with persons or events important in history.

MINING RELATED SITES

Isolated artifacts associated with Mining Exploration Sites

Justification: Negligible contextual information; minimal potential to yield important data beyond that gleaned at time of recording.

Isolated Nonarchitectural features

Justification: Low information content; minimal potential to yield important data beyond that gleaned at time of recording.

Strictly surficial artifact scatters or concentrations

Justification: Limited potential to yield important information beyond that gleaned at time of recording.

Mining and milling sites with poor integrity

Justification: Hundreds of mine exploration, development of milling sites may exist that are not particularly valuable as representatives of the site type or any site subtype. Identification and protection of selected sites will preserve the archaeological data base. Care should be taken to ascertain whether particular sites are rare representatives of site subtypes of whether the sites are associated with persons or events important in history.

Worker's housing sites with poor integrity

Justification: Hundreds of domestic sites associated with miner's may exist that are not particularly valuable as representatives of the site type or any site subtypes. Identification and protection of selected intact sites will preserve the archaeological data base. Care should be taken to ascertain whether particular sites are rare representatives of site subtypes or whether the sites are associated with persons or events important in history.

Sites of any type damaged by natural or man-induced causes to the extent that physical integrity is compromised

Description: This would include prospects, trenches, bulldozer cuts, trash dump, ditch, placer mining, deep industrial mines, rat-hole underground mines, surface mines, mill sites, water engineering sites and other exploratory or development sites.

Justification: Data content limited or of questionable interpretive value; limited potential to yield important information.

Exception: If site is scene of sequential mining activity (placer/lode etc). over a long period of time, should be considered as an historic mining landscape and indicative of changes in the landscape over historic time.

Claim cairns/Claim posts/signs

Justification: In and of themselves, claim cairns/posts/signs provide little information. Care should be taken to determine if additional resources are present that may provide about the spatial organization or technology employed at mining sites.

Waste rock piles and tailings

Justification: Waste rock piles and tailings piles provide little information in and of themselves. However, waste rock piles in conjunction with evidence of technology may be significant. In addition, care should be taken in recording all mining features that may be hazardous as defined by the Environmental Protection Agency.

Process for Applying National Register Criteria to Mining and Other Properties

To be eligible for nomination to the National Register of Historic Places, properties must be significant in American history, architecture, engineering or culture and possess integrity of location, design, materials, workmanship, feeling and association. The property must also meet one or more of the four National Register criteria:

(a) that are associated with events that have made a significant contribution to the broad patterns of our history; or,

(b) that are associated with the lives of persons significant in our past; or,

(c) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or,

(d) that have yielded or may be likely to yield, information important in prehistory or history.

The following guidelines will assist in determinations of National Register eligibility. Integrity assessments are made separately. The four primary NRHP eligibility criteria serve as requirements and help provide a yes/no process. The matrix separates eligible properties from those considered ineligible in a systematic and defensible way. Some sites may be individually ineligible but may be considered contributing elements to a district, in which case the yes/no decision will be made at the district level not the site level.

Following the steps outlined below will allow for consistent evaluations of integrity and National Register eligibility. These steps are applicable to all property types discussed.

Criterion a: Broad Patterns of History

Under Criterion a, a mining property may be eligible for listing in the National Register through its connection with historic themes. The themes may be applied to historical patterns other than mining. Relevant areas of significance (listed in National Register Bulletin 16A and 42) include: agriculture, business, commerce, community planning and development, conservation, economics, education, engineering, ethnic heritage, exploration/settlement, invention, labor, law, literature, military, politics/government, science, and social history.

Eligibility Evaluation for Criterion a (events that have made a significant contribution to the broad patterns of our history)

The following steps may be used when determining Criterion a eligibility:

Step 1: Identify the major events with which the property is associated. For historical archaeological properties this is demonstrated primarily through the use of historical research. Archaeological evidence supports linkages between events and the property. When considering major events a major question is: Does the property retain sufficient integrity to convey association with any of the following events and patterns that may have made a significant contribution to the development of a community, the region, the state or the nation?

- world system and commerce
- mining technology change
- first or last of a mining technology type
- overseas Chinese or involvement of other minority
- transportation
- agriculture
- logging
- water development
- community development
- recreation development
- Forest Service Administration
- early exploration
- placer gold rush; placer mining
- industrialization of the mining industry
- decline in mining (1910-1929)
- Depression era subsistence mining (1930-1943)

Step 2: The event and/or historic pattern must be documented relative to the historic context. Documentary evidence must be available to demonstrate the association of the major events with the historic property.

Step 3: The property must have existed at the time or and be directly associated with the events or patterns of events.

Step 4: When assessing the integrity of a property under Criterion a, an archaeological property must have good preservation of features, artifacts and spatial relationships in order to illustrate a specific event or pattern of events.

Eligibility Evaluation for Criterion b (association with persons significant to our past)

The following steps may be used when determining Criterion b eligibility:

Step 1: The property must be directly linked to the person and the reason why that person is considered important. The major owner of a mine may have been important in the historical development of Oregon. The property would be eligible if there is a direct link between the person and the site, i.e., he made important decisions at or from the site, not that he owned the site.

Step 2: The person associated with the property must be individually significant and not just a member of a profession, class or social or ethnic group. National Register Bulletin 36 states, "all lawyers and doctors are not important."

Step 3: Properties must be associated with the activities, events, etc. for which the person is recognized as important.

Step 4: The essential physical features that were present during the property's association with the persons life must possess integrity. One question to ask is, "Would the person recognize the property?"

Eligibility Evaluation for Criterion c (the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, possesses high artistic values, or represents a significant and distinctive entity whose components may lack individual distinction):

The following steps may be used when determining Criterion c eligibility:

Step 1: Architecture: Determine if the property retains a distinctive character. Mining properties have an architectural style of their own combining industrial design with

vernacular materials. Development of support networks may include homesteads, transportation networks, logging structure, water development structures and other layouts that may have architectural aspects.

Step 2: Engineering: Determine if the property is an example of engineering techniques. The engineering aspects of transportation networks, facilities, logging structures etc. may make a property eligible under Criterion c.

Step 3: Assess integrity using the concept of visibility and focus. A property must have above-ground remains that are well-preserved and illustrate the design and construction of the building, structure or feature.

Step 4: In order to be eligible it must represent a good example of the feature system, site and/or site systems identified earlier. The following architectural/engineering types are a guide and not all-inclusive. Does the property have good integrity (visibility and focus) and provide a good illustration of:

- mine exploration technology
- placer mining including an architectural presence
- rat hole mine
- hydraulic mining
- arrastras or stamp mills or early cyanide mills
- industrial mines
- industrial architecture or commercial architecture or residential architecture
- water engineering
- transportation networks

Eligibility Evaluation for Criterion d (has yielded or potential to yield information important to history)

To qualify for NRHP eligibility under Criterion d, a property must meet the following requirements:

1. The property must have, or have had, information that can contribute to our understanding of human history or prehistory;
2. The information must be considered important.

Information may be archaeological data (artifacts, features, etc.), historical data (written or oral), or the potential for these data to answer research questions. Research designs, questions and theoretical approaches change as the field of historic mining archaeology evolves. A standard list of research questions does not exist. However, the context and research design above provides some guidelines. Generally speaking, the following questions are considered important:

- relating to variability and change in mining technology; may include information on exploration site systems (prospect pits; trenches; rat-hole mines) or metallurgical site systems such as sluices, dredges, arrastras, stamp and pan mills or cyanide mills.
- relating to subsistence mining and/or industrial mining; may include information on industrial mines such as deep underground mines; large scale placer operations; dredging and hydraulic mines and subsistence mines such as small scale placer mines or rat-hole mines
- relating to mining and the workplace and community and may include domestic household sites such as building pad/dugouts, trash concentrations, privy pits and outhouses, log structures/houses; boarding houses, single family dwellings; frame structures and satellite settlements. In addition, may include information on support site systems such as logging sites, water engineering systems, transportation systems and services.
- relating to household variability and change that may include information allowing interpretation through artifacts that can be dated and contain information about dwelling and household size and composition
- relating to ethnicity/ethnic relations/gender/gender relations including information allowing interpretation of property through datable artifacts and ethnic marker artifacts; gender information may include artifacts that are datable and include gender specific items (female clothing).
- relating to social structure/class/relationships that may include information about datable and status marker artifacts (inexpensive vs. expensive tableware, for example).
- relating to community formation/spatial organization including information about chronology and evolution of the geographic layout, functional structure or social organization.

The steps to be followed include:

Step 1: identify appropriate framework for evaluation using historic context.
Step 2: identify important research questions that the property's information may address using the research design.
Step 3: Identify the data needs in the research design.
Step 4: Evaluate the data in terms of potential and ability to answer the research questions.
Step 5: Identify the information that an archaeological study may yield or is likely to yield.

Evaluation of resources using Criterion d requires application of a Research Design or Problem Domains. The Historic Research Problem Domains specify and interdisciplinary research design to use when evaluation the historic archaeological remains under Criterion d.

HISTORIC RESEARCH PROBLEM DOMAINS (RESEARCH QUESTIONS)

The research design that adapts many comparative studies of Western community, drawing heavily from mining areas that have been studied to date (see for example Hardesty, 1986, 1987, 1988a, 1988b or Mehls et al 1992). Community is defined in terms of the boundaries of social and economic networks. This scheme could be applied to all time periods from earliest human use and occupation through permanent Euro-american settlement of the area. The key elements of this research design are the organization and dynamics of the community in several problem domains, including household, consumer behavior, ethnicity, gender and others. What must be remembered is that documentary, ethnographic and archaeological data offer somewhat different but complementary images. Combining the three disciplines of history, anthropology and historic archaeology, with input from other fields for the historic period, offers the possibility of a multi-dimensional image of communities in the American West.

The research design is dynamic and adaptable so that as collective knowledge increases the design can continue to mature as well. Given the potential range of activities, cultural resource managers believe that a research design needs to remain pliable enough to meet whatever contingencies arise through the ensuing years. Secondly, this is not a data recovery plan. Such plans should not be framed until after specific actions have been identified and any needed inventory and evaluation phases have been completed. However, this research design can be used to guide the inventory and evaluation of historical archaeology sites in the Study Area and then adapted to any subsequent data recovery programs.

Evaluating any historical property begins by using the historic context within which it can be placed. Since above ground resources are evaluated under Criteria a, b and c of the National Register, this research design will focus on Criterion d as it relates to those contexts. Following the approach proposed by Schuyler (1988) and reinforced by the National Register Bulletin 42 the proposed research strategy for the Study Area has two key goals. The first goal is to write a preliminary "historical ethnography" of the Study Area within which cultural resources can be interpreted using data from documents, oral informants and archaeological remains. Anthony F.C. Wallace's (1987) ethnography of the nineteenth century coal mining town of St. Clair, Pennsylvania, is an example, as are the studies of contemporary Bolivian mining communities by Nash (1979) and Godoy (1990). The key elements of such studies include the demography, social and political organization, health and living conditions, economics, and ideology of the community. Study of the impact of gender structure the community also may be included, along with ethnicity and ethnic relationships, when gender or ethnic indicators are found during field work.

The second goal of the research strategy is to place the communities of the Study Area and many associated cultural resources within the larger social and cultural context of late nineteenth and early twentieth century mining communities in Oregon and the American West, or as Schuyler

(1988) terms the approach, a "historical ethnography." Comparative data from other historical and archaeological studies of mining areas will be used to identify and interpret broad patterns of variability and change in community social structure, economic organization, and ideology.

Time. Developing a chronological framework for the historical properties is required to address most of the issues raised in the problem domains. Questions about variability and change in worker's housing or the living conditions of workers, for example, cannot be answered without information about the time periods during which specific residential features were occupied. The historical context and overview provides a starting point for dating properties; however, the archeological record of the property may provide more detailed information. For this reason, archaeological features with good time markers are considered to be especially significant.

Place. The problem domains also require that place or geographic scale be defined. For our purposes, however, the place within which the cultural resources must be evaluated relates to the geographic or political boundaries which define the site. The definition may be a mining district's boundaries, a town, or just the site boundaries that may include outlying isolated prospector's camps, ranches and homesteads. Together the settlements and outlying areas formed a social and economic interaction network that defined a "regional community."

Themes. The problem domains also are organized around several key research or study themes derived from the historic context. Those themes led to the development of six "problem domains" or general problem groups discussed below. Each of the problem domains includes one or more specific "problem areas" around which the key research questions are organized.

PROBLEM DOMAIN I: THE MINING PATTERN

During the years after the California Gold Rush (1849), prospectors searched throughout Oregon for precious minerals. By the 1860s small mining and commercial settlements emerged and the area's miners organized themselves into the Mining Districts. After the initial boom, the area went through a period of subsistence level mining in the period 1910-1929. Another period of subsistence level mining occurred during the Depression Era (1929-World War II). Following earlier patterns, miners re-worked previous claims or attempted to find new claims. Throughout the West the search for gold continued, although on an isolated, individual scale. Written accounts and the archaeological remains have the potential to answer several questions about the mining operations and the various settlements as representative of certain phases of mining community development in nineteenth and twentieth century Oregon.

Problem Area I-A. Mining and Milling Technology.

Mining, prospecting and later ore refining were important to the early development of eastern Oregon during the nineteenth and early twentieth centuries. Non-industrial mines during this

period, however, are not well documented. Written accounts indicate that the archaeological remains found in parts of the Study Area might have the potential to answer questions about the technology and general operation of such non-industrial mines. Other mines represent a counterpoint to the non-industrial mines because some mines evolved into industrial operations. These mines encouraged specialized spatial uses and arrangements, divisions of tasks and labor, relatively sophisticated machinery and equipment and other things typical of industrial operations. The milling technologies represent a similar pattern from panning for nuggets to low technology operations such as arrastras on to cyanide mills. Written accounts provide information about the industrial level of mining and the archaeological data might provide supplemental information.

Data Requirements:

The data needed to address the questions and hypotheses associated with this problem area include:
Archival: Mineral survey records; Mining District minutes; operating records of the local mining companies, U.S.G.S. records, U.S. Bureau of Mines and Oregon State mining reports.
Oral: Interviews of former residents, miners or their descendants with knowledge of the area
Cultural Resources: Sites, features and artifacts that are dateable and associated with mining or milling activities, especially mining or milling machinery and tools.

Property Types: Mine Exploration and Mine Development

PROBLEM DOMAIN II:. MINERS AND PROSPECTORS AS PART OF OREGON'S LABOR HISTORY

The historic context suggests that questions about the Study Area prospectors, mine and mill workers and related labor issues in nineteenth and twentieth century mining are worth consideration. Two specific problem areas have been defined within the labor history domain: (1) worker's housing; and (2) worker's lifestyles. (NOTE: For succinctness prospectors, mine and mill workers and wood cutters are being consolidated under the term "workers" for these discussions.)

Problem Area II-A. Workers' Housing.

One set of research questions about labor is related to worker's housing. For example, workers appear to have lived in a variety of simple shelters and households that, based on archival research completed to date, included family residences, barracks, and small all-male residences. Comparative data about the architecture and household organization of worker's housing are considered to be important. The image of the lone miner is part of the mining picture. In addition, miners depended upon outside areas for supplies, communication with the rest of the nation, social activities and other necessities. As new forms of transportation became available during the twentieth century workers may have moved farther and farther away from the mines.

This pattern of living away from the work location may result in incomplete evidence regarding worker's housing and domestic patterns However, evidence supporting either close-in or outlier residences will provide needed information about worker's housing patterns in the late nineteenth and early twentieth centuries.

It is expected that the functional type and composition of the individual workers' households will be visible in the archaeological record. Specifically, the domestic function and quantities of artifacts will indicate the type of household, including family residences, boardinghouses or hotels, apartments, or single sex households. This information can be modified and reinforced by documentary and oral information. For example, an all male miners' household is expected to exhibit a higher relative frequency of brown or aqua glass, coarser ceramics and possibly metal plates and serving pieces. A family household will have more clear or purple glass, possible more expensive ceramics such as decorated whiteware and female and/or child-oriented materials such as hair curlers or toys (Hardesty, 1988, 1989)

Problem Area II-B. Workers' Lifestyles.

Yet another set of research questions about workers in the Oregon mining industry is related to variability and change in the lifestyles of workers living in the Study Area. The Lowell Company boarding houses studied by Beaudry and her colleagues (in press) suggests how history and archaeology can be combined to define and answer questions about worker's lifestyles. One key question, for example, is the role that drinking played in the labor movement and in the social class system. Bond (1989: 11) notes that the archaeological evidence for heavy drinking at the Lowell boarding houses in the face of company policy may either have promoted working class solidarity or have been a reflection of ethnic traditions and a pre-industrial work ethic. During the Victorian Period (1875 to World War I), middle class values not only looked down on drinking but also on the use of tobacco. Similar to alcohol use, the use of tobacco by the working class also may have promoted solidarity or may simply reflect cultural preferences. The material "symbols" of working class affiliation may be an important part of worker's lifestyle.

In particular, issues regarding the quality of life are of interest in attempting to answer questions about workers' lifestyles. Studying quality of life includes topics such as the health and nutrition (Problem Area II-C) or the working conditions of mines. For example, different mines and mine owners had different policies regarding their employees, and those policies, as well as the remuneration, constituted a major portion of a worker's quality of life.

Another factor that influenced the quality of life was the housing occupied. Did or could the worker afford a larger house, or did wages earned or spending habits force the worker to live in a house too small for his needs? Also, could the household afford the luxury or necessity goods of the period? Attendant with the topic of spending habits is the issue of recreation, and especially drinking. The role that drinking played in the labor movement and in the social class system is

one key question about lifestyles. Certainly, heavy drinking of alcoholic beverages by mine and smelter workers is part of the "myth" of frontier mining communities. Bond (1989:11) notes that the archaeological evidence for heavy drinking at the Lowell boardinghouses in the face of company policy may either have promoted working class solidarity or have been a reflection of ethnic traditions and a pre-industrial work ethic. Similar to alcohol use, the use of tobacco by the working class also may have promoted solidarity or may simply reflect cultural preferences. The material "symbols" of working class affiliation may be an important part of the workers' lifestyle. Combining data from written accounts, oral histories, and the archaeological remains of households and public drinking establishments may help answer these and other questions about how the culture and behavior of workers in the Study Area can best be interpreted.

Problem Area II-C. Workers' Health and Nutrition.

Another group of questions in this problem domain is related to the health and living conditions of mine and mill/smelter workers. Archaeological remains, written accounts, and oral histories can be used to compare the living conditions of workers in the Study Area with other towns and elsewhere during the late nineteenth and early twentieth centuries. Using a similar approach, Beaudry (1993), for example, studied the sanitation, hygiene, and nutrition of nineteenth century cotton mill workers in Lowell, Massachusetts, through the archaeological record and written accounts. The two sources of information suggest that despite the penetration of nineteenth century domestic ideology (e.g., notions of economy and scientific housekeeping) into the design, operation, and maintenance of the Lowell boardinghouses, workers and housekeepers retained traditional notions of health and nutrition. Analysis of the diet of workers living in the company boardinghouses through written accounts and archaeological remains, for example, show that foods high in fatty meats, starch, and carbohydrates were typical. The diet not only was contrary to the "new" ideology of health and nutrition in the late nineteenth century, but also shows that traditional food habits were retained in the face of corporate ideology. In fact, documents show that the workers were quire happy and satisfied with the traditional diet even though scientifically unhealthy and contrary to the image of workers' well-being that the cotton mill company tried to convey to the public. It is possible that retention of the traditional diet may be related to the high caloric needs of the work performed.

In a similar way, the archaeological remains, written record, and oral accounts of the Study Area, can be combined to provide information about the conditions of health and nutrition in workers. Animal remains, plant remains, soil chemistry profiles such as lead content, and other archaeological data on nutrition, sanitation, and health can be combined with documentary and oral accounts of not only what was eaten but also what workers thought about diet and health conditions generally. Pollen, phytoliths, and macro fossils surviving in the archaeological record can be used to reconstruct vegetation in the backlots of boardinghouses and other worker's housing. Another measure of well-being is "crowding" in workers' housing. The material remains

and written accounts of housing potentially contain information that can be used to contrast not only the sizes of buildings but also the number of occupants in each building or room.

Information about worker's health and nutrition provides insight into the day-to-day living conditions, as well as the long term ramifications of working and living within a certain industry. It is expected that analysis of the diet of workers may show consumption of foods high in fatty meats, starch and carbohydrates. Written and oral accounts may confirm that families ate similarly to the primary worker.

Data Requirements:

Archival: Gazetteers, newspaper accounts, property ownership records, government documents, tax assessment roles, company housing records and census data, diaries, union records, background sources, fire insurance maps.
Oral: Oral histories from former residents (if available).
Cultural Resources: Sites, features and artifacts that are dateable and associated with subsistence, household/domestic, personal and leisure/recreation activities and/or that contain artifacts associated with such activities.

Property Types: Mine Exploration and Mine Development/Mine Related

PROBLEM DOMAIN III: THE MINING COMMUNITY

The Study Area supported and/or had connections to settlements of many different sizes and complexities. These included isolated prospecting camps, ranches and/or homesteads, timber harvesting camps, towns, and cities.

Problem Area III-A. The Boundaries of the Community.

Road networks, economic interaction networks, and social interaction networks can be used to define the boundaries of the regional community within the Study Area. Margaret Purser (1989), for example, has used road networks effectively as a material and visible expression of community to define the geographic boundaries of the regional community of Paradise Valley, Nevada. Social interaction networks reconstructed from written accounts of personal life histories have been used by Rutman and Rutman (1984) to define the boundaries of the regional community between 1650 and 1750 in Middlesex County, Virginia. Geographers and sociologists also are concerned with similar topics. Written accounts, oral histories, and the archaeological remains found in parts of the Study Area appear to contain information about the economic, social, and road networks needed to define the full extent and complexities of settlement and land-use patterns.

Data Requirements:

Archival: Road and railroad maps and schedules, census data and mining employment data, government documents, analysis of housing/church/social/union organization attendance/membership, patterns/residential location.
Oral: Oral histories from former residents or their descendants knowledgeable about local social networks.
Cultural Resources: Sites, features and artifacts that are dateable, distinguishable house and commercial buildings or ruins with artifacts related to subsistence and entertainment activities. Sites, features, artifacts associated with transportation or communication networks.

Property Types: Mine Exploration and Mine Development/Mine Related

PROBLEM DOMAIN IV. COMMUNITY SOCIAL STRUCTURE

If, how, and why the Study Area communities organized along the lines of class or other social inequalities is another problem domain. The contrast between a working class and a middle class of merchants and shopkeepers is important. Does the class structure crosscut any so far unseen ethnic boundaries or could each ethnic group have a distinctive social structure that overrides the larger economically based hierarchy within the regional community? Again, community social structure may be impacted by the daily migratory patterns of many workers who did not reside adjacent or near the mines. This removal of the work force on a routine basis may have resulted in different or atypical community social structures from that of residential mining camps. The analysis and interpretation of the Study Area's social structure must take place within the boundaries of the community not at the individual site level.

Problem Area IV-A. Non-Industrial and Industrial Social Structure.

Modern views of mining camp life tend to offer two images of the past. The first is that of the lonesome prospector with his burro, picks, shovels and whatever else he could put on the burro. In other words, someone on the periphery of many social structures. The second image is of the wage worker and his existence in a controlled environment. That image offers a model that can be used for comparative purposes when a region with both non-industrial and industrial areas, such as the Study Area, is reviewed. Moreover, such considerations facilitate the comparative analysis of the Study Area's communities with the results of similar studies throughout the West.

Some of the most important issues in modern labor history associated with the industrial workplace focus on the cultural and social relationships of wage workers in the community (e.g., Brody 1980, Dubofsky 1985, Gutman 1976, Wallace 1978). The evolution of social hierarchies including a distinct "working class" that defines relationships between workers and other members of the mining community is a key problem area. Class and power theory, for example, which is

based on asymmetrical social relationships between elite groups (i.e., claim owners, especially non-resident ones) and subordinate groups (i.e., prospectors and miners), may provide some insights into the social structure of the local community as an example of the social structure of a non-industrial mining district (v. McGuire and Paynter 1991; Paynter 1988). The key is the formation of and the interplay between the "domination" strategies devised by elite groups such as mine owners or managers and the "resistance" strategies of subordinate groups such as mine and mill workers, especially lessees. "Controlling labor" through lease arrangement to make workers produce more, for example, is a typical domination strategy. Another variable is the role of organized labor in communities. Labor disputes and struggles may have impacted either domination strategies or resistance strategies throughout the Study Area. The material expression of the social structure of the local community, for example, may include housing and other architectural remains as symbols of power, wealth, gender, or labor strategies such as isolated prospector camps or worker's barracks; especially when associated with the archaeological remains of household consumer behavior.

Data Requirements:

Archival: Gazetteers, newspaper accounts, property ownership records, government documents, tax assessment roles, company housing records and census data, diaries, union records, background sources, fire insurance maps.
Oral: Oral histories from former residents or their descendants.
Cultural Resources: Sites, features and artifacts that are dateable and associated with subsistence, household/domestic, personal and leisure/recreation artifacts.

Property Types: Mine Exploration and Mine Development/Mine Related

PROBLEM DOMAIN V: MINING DURING THE DEPRESSION YEARS

The years from World War I until World War II (1919-1939) were marked with economic dislocation in many parts of the country and for individuals in a variety of occupations. Farmers faced increased competition and declining prices. Many miners faced similar conditions. As the United States economy worsened during the 1930s, government relief efforts were often inadequate. As a result, subsistence mining as well as subsistence agriculture efforts developed. The creation of a subsistence mining culture that contrasts dramatically with the larger, world system mining experience, may be present in the smaller operations. The two, quite different, mining patterns can be thought of as occupying the ends of a scale measuring the degree to which local communities are integrated into the larger, world system. At one end of the continuum is the world system model. Here the local community is, in effect, a "colony" of national or international corporations. In world system mining, large scale labor, technology, capital and supplies are imported into the mining community, and profits flow out from the community to the investors. During the late nineteenth century cities such as San Francisco, Denver, New York,

Boston, London and Paris acted as focal points for many smaller communities. As a result, the smaller communities are very sensitive to any change, such as a slight drop in bullion prices paid in New York. The communities also will reflect other changes in the world system, such as changes in technology or new consumer product introduction. In the modern world, for example, South Africa's large mining operations are of this kind. Those in the American West of the late nineteenth century also fall into this category.

At the other end of the continuum is localized, subsistence mining. Subsistence mining is done on a smaller scale and is marked by geographical localization of labor, supplies, capitalization profits and expenditures (Winthrop and Chambers, 1988:19). Economically, subsistence miners are much less specialized than world system miners, often mining seasonally or part-time and supplementing their income when necessary by engaging in other occupations such as wage labor or ranching. They are locally oriented, cash poor and have few ties to the larger world system. The gold market itself often was the only real link to the outside world, which provided a small cash income that could be used to purchase manufactured goods. Most commodities were locally acquired by hunting, home gardening and bartering with neighbors (Winthrop and Chambers, 1988:69, see also Adams 1976). The contrast between world system and subsistence mining provides a framework within which to interpret the mining activity in the Study Area during its history, thereby furthering our appreciation for ephemeral mining camps in the West.

As might be expected, the impact of the Depression upon the Study Area greatly depends upon the extent to which it had a world system mining culture or a subsistence mining culture. A model of the subsistence mining community of the Depression era has already been built and can easily be adapted to the individual communities within the Study Area. The model comes from the Winthrop and Chambers (1988) study of western Siskiyou County, California. They build a case for minimal impacts from the Depression. Subsistence mining in the Siskiyou area emerged between 1900 and 1930. Already in place when the economic dislocations of the Depression took hold of the nation, the mines acted as a buffer for the area. The buffering took place for two reasons: (1) the local focus of subsistence mining minimized ties to the world system; and (2) gold mining was "economically counter-cyclical" (Winthrop and Chambers, 1988:69). The Siskiyou miners were locally oriented, diverse, and self-sufficient with little dependence upon the national economy. Cash had never been very abundant in these communities, so that the drastic reduction in cash brought about by the Depression did not have much of an impact. Only a few commodities were purchased on the national market, with both labor and supplies often coming from reciprocal exchange within a "neighboring" network.

The background supports the idea that changes in consumer behavior and the mining technology can be expected to include increased evidence of economic "self sufficiency," including more use of locally available wild resources, diversification, "neighboring," and less use of manufactured commodities. Evidence of recycling of older equipment and machinery for mining will also be apparent. There may be many implications for the Study Area. Can migratory patterns expected

in mining districts during the depression periods be seen? Documentary information indicates that during the Great Depression both mining and miners increased significantly in the District, creating a new migratory pattern. Unemployed and largely middle aged people from the cities and farm belt workers migrated to the gold fields throughout the American West with the intention not of "striking it rich" but of making a living. The documentary image may be expanded on by the archaeological images of the Study Area.

For example, changes in consumer behavior may include increased evidence of economic "self sufficiency," including more use of locally available wild resources, diversification, "neighboring," and less use of manufactured commodities (lower percentage of bottles, cans, and other imported items). Both a general decrease in household wealth (such as a lower percentage of "luxury" items) and increased variability among households, reflecting less integration into the world system, more dispersed geographical distribution and less local community integration may be identifiable. At the level of the locality and the region, the expectations include changes in the geographical distribution of mines and settlement related to Depression Era migration such as:

1. increased occupation of marginal deposits throughout the district; and
2. more dispersed settlement patterns including more evidences of settlement of workers living at the mines they worked in and/or with nodes organized around migratory units (kinship groups or groups coming from the same place).

Data Requirements:

Archival: Gazetteers, newspaper accounts, property ownership records, tax assessment rolls, government documents, census data, diaries, background sources, fire insurance maps.
Oral: Oral histories from former residents.
Cultural Resources: Sites, features and artifacts that are dateable and associated with subsistence, household/domestic, personal and leisure/recreation artifacts associated with architectural features interpretable over time and reflecting the changes in the amount of disposable income reflective of world economic conditions.

Property Types: Mine Exploration/Mine Related

PROBLEM DOMAIN VI: THE FEDERAL GOVERNMENT AND MINING HISTORY

A theme that has intrigued many historians of the American West (Hays 1975; Nash 1982; Lamm and McCarthy 1982; Worster 1965) but has yet to be incorporated into cultural resource studies in adequate terms except for studies of Federal or state facilities, is the role of the Federal government in the life and history of western mining communities. What presently is missing from many of the studies is an appreciation of the pervasive, yet often subtle, role of Federal policies on the life of western miners and others. Federal land policies, aid to transportation, a military presence and other topics all pervade nineteenth century Western history. Equally, policy shifts

beginning during the 1890s and continuing on into the twentieth century substantially altered the ways lands and other natural resources were used and thus the lifeways of the West's and Study Area's inhabitants.

While it can be argued that nearly all western enterprises depend on Federal policies and legislation, gold mining, the historical activity most associated with the Study Area, above all others, depended on Federal policies, especially Federal manipulation of metal prices. Very little effort has been expended in using the archaeological record to understand how these changes impacted local, mining camp life. During the twentieth century, policies such as the increase in federally mandated gold prices from $20.00 per ounce to $35.00 per ounce and others continued to play a large role in western mining development.

Another area of interest and concern, again primarily with data from the written record, is the change in public attitudes about the conservation and management of natural resources. The well publicized abuses of the western public lands by cattlemen or loggers, the concerns over water pollution to streams caused by hydraulic mining and other issues led to an increased public awareness of these problems. As the United States urbanized and industrialized during the late nineteenth century, an emerging middle class noticed and realized that more and more of America's natural resources were not infinite. As a result, a movement to change Federal policy, especially those governing the use of the public domain, gained momentum during the late 1880s. By 1891 enough public interest had been generated to force Congress to take the first steps toward a national conservation policy in the form of the General Revision Act. From 1891 through the Progressive Era that ended during World War I, the Federal government promulgated major shifts in policy that reversed previous trends. Before 1891, Federal policy regarding the West and natural resources had been to use the resources as enticements to settlement and economic development. After passage of the General Revision Act (1891) Federal policy has almost consistently moved toward conservation and resource management rather than uncontrolled exploitation. These shifts, both in silver's monetary status and natural resource conservation denote an area of study that will help interpret the local, Study Area, cultural resource base.

Problem Area VI-A Federal Monetary Policy

Federal monetary policy, especially the use of silver for coinage, led to long debates and numerous Congressional Acts during the late nineteenth century. The Federal government set the value ratio, in ounces, of silver relative to gold, typically at 16 (silver) to 1 (gold). However, a lack of silver after the Civil War led in 1873 to the Coinage Act that removed silver from the United States money supply. Referred to by many as "The Crime of 1873," protests, especially from midwestern farmers seeking inflation and western miners seeking a market, led to passage of the Bland-Allison Act (1878) requiring the U.S. Mint to purchase $2-$4 million of silver a month at market prices. This stimulated mining but did not cause the hoped for inflation and the

commercial price of silver continued to fall. By 1890 its ratio to gold was 20:1. The Sherman Silver Purchase Act (1890) required the Federal government to purchase 4.5 million ounces of silver per month. Despite this impetus the increasing supplies of silver resulted in a declining price that reached a ratio of 26:1 in 1893 and 32:1 the next year.

The Federal policies regarding silver were satisfactory to no one. Silver miners saw the price of their bullion declining by 50% within twenty years. Debtors believed that they were repaying obligations with dollars worth more than earlier. Supporters of the gold standard were concerned about what actions the Federal government would next take. President Grover Cleveland believed that the Panic of 1893 was partially attributable to the silver issue. Calling a special session of Congress, the Sherman Silver Purchase Act was repealed in 1893.

The changes in silver policy led to a depression across the nation that hit silver miners especially hard. For the next three years the nation struggled to regain its financial footing. As the 1896 presidential election approached, the Democratic Party found itself challenged by another group, the Populists, and moreover, Democrats were deeply divided. Eventually the "free" silver candidate, William J. Bryan, received the nomination. In part, his popularity was attributable to the famous "Cross of Gold" speech.

Although the Bryan candidacy generated tremendous western interest, he failed in his bid for the White House and the silver issue was answered with a certain finality. Approximately 40 years later the nation faced another depression and again Federal policy intervened. As part of President Franklin Roosevelt's efforts to revive the economy, known as the New Deal, the price of gold was raised. Then in 1943 Federal mineral policy again impacted western mining by closing all mines that were not producing strategic minerals. The implications of Federal monetary policy for the Study Area include possible changes in migratory patterns to and from during the periods of Federally mandated silver purchases, for example, as miners sought new or different gold producing areas.

Changes in consumer behavior may include increased evidence of economic dependency, including more use of imported food resources, diversification, and increased use of manufactured commodities (higher percentage of bottles, cans and other imported items). Both a general increase in household wealth (such as a greater percentage of luxury items) and decreased variability among households, reflecting more integration into the world system, more dispersed geographical distribution and less local community integration, may be identifiable. At the level of the locality and the region, the expectations include changes in the geographical distribution of mines and settlement related to Federally stimulated migration such as increased occupation of marginal deposits and more varied mining patterns including a wider range of technologies. During periods when mining had less Federal stimulation, opposite indicators are expected.

Data Requirements:

Archival: Gazetteers, newspaper accounts, property ownership records, government documents, tax assessment roles, company housing records and census data, diaries, union records, background sources, fire insurance maps.
Oral: Oral histories from former residents who lived in the area during the 1930s.
Cultural Resources: Sites, features and artifacts that are dateable and associated with subsistence, household/domestic, personal and leisure/recreation artifacts interpretable over time and reflecting the changes in the amount of disposable income relative of world economic conditions.

Property Types: Mine Development/Mine Related

Problem Area VI-B Federal Natural Resource Policies

The late 1800s was a period of change in the West. Forces like Populism held sway in the region's thinking because of many residents' inability to keep pace with rapidly evolving socio-economic conditions. Much of the region's prosperity was based on the unlimited exploitation of easily available natural wealth such as minerals, timber, land, water, and grass. But by the 1890s, the seemingly endless resources were being exhausted. Most Oregonians failed to realize this, yet some individuals did. Citizens in the eastern United States, with their different, somewhat wider perspectives, did foresee the finite nature of the resources. These same people began taking steps during the 1890s to protect and conserve those resources that remained (McCarthy 1977:12-25).

Such vision began a nationwide conservation movement in America during the 1880s and 1890s. Resource protectionists were particularly concerned with abuses to the public domain occurring under the Desert Land and Timber Culture Acts. By 1890 these misuses were well documented and pressure grew in Washington, D.C. for action. In February, Illinois U.S. Representative Lewis Payson proposed a General Revision Bill to repeal the Desert Land and Timber Culture Acts, as well as to allow the President to remove any tracts that he designated from future entry, thus creating the Forest Reserves. Debate over Payson's bill lasted over a year (Robbins 1976:217-220; McCarthy 1977:16-18).

Opponents argued that such a law would remove from future generations opportunities that had long been enjoyed by their forefathers. No longer would the pioneer be able to go forth into the wilderness and carve out a life for himself. To take large pieces of public domain and hold them forever in federal hands would mark the demise of the yeoman farmer. Supporters felt that if Payson's bill was not passed there would be nothing left for future generations. This was quite the opposite of the anti-conservationists. Furthermore, as the scientific understanding of ecological systems developed, the important role of forests as watersheds became more apparent. If the use of irrigation was to continue growing, woodlands had to be protected, especially in the arid West.

Conservationists advocated managed use of lands and resources. This was not to close access to the natural bounty, but rather to instill order over it (McCarthy 1977: 15-24).

Oregonians had first hand experience with unregulated resource exploitation. By 1890, private use of timber and grazing lands left much of the state in a denuded condition. Over-grazing and fencing of the public domain had crippled much of the range's ability to produce adequate supplies of forage while denying many individuals access to the public domain. The depredation of Oregon's forests because of the need for mine timbers and fuel resulted in destruction of thousands of acres. Wildlife also suffered because of this uncontrolled use of the state's natural resources (McCarthy 1977: 150-153; Wright 1974:38).

Conservationists were successful and on March 4, 1891 the General Revision Act became law. It was not long until Oregon felt the impact of the new law. During 1891 special agents for the General Land Office (GLO) started surveying timberlands. They went about their work through the summer, little noticed by residents. However, results of their efforts were impressive. Beginning in the fall of 1891, millions of acres were withdrawn from private entry and President Benjamin Harrison declared dozens of Timber Land Reserves (McCarthy 1977:16-21). Westerners reacted to these withdrawals with everything from private editorials to threats of violence. Nevertheless, the pattern of the future, managed use of the region's natural resources, began.

There may be implications for the Study Area. Can patterns of logging be seen? Documentary information indicates that during the Great Depression timber cutting decreased significantly in the region, creating a new migratory pattern. Unemployed loggers and others may have migrated to other parts of the American West, often with the intention of making a living at a new occupation such as gold mining. The documentary image may be expanded on by the archaeological image of the Study Area.

For example, changes in consumer behavior may include increased evidence of economic "self sufficiency," including more use of locally available wild resources, diversification, "neighboring," and less use of manufactured commodities (lower percentage of bottles, cans and other imported items). Both a general decrease in household wealth (such as a lower percentage of luxury items) and increased variability among households, reflecting less integration into the world system, more dispersed geographical distribution and less local community integration may be identifiable. At the level of the locality and the region, the expectations include changes in the geographical distribution of settlement and especially abandonment of such areas.

Data Requirements:

Archival: Gazetteers, newspaper accounts, property ownership records, government documents, company housing records and census data, diaries, union records, background sources.
Oral: Oral histories from former residents involved with logging or similar industries.

Cultural Resources: Sites, features and artifacts that are dateable and associated with subsistence, household/domestic, personal and leisure/recreation artifacts interpretable over time and reflecting the changes in the amount of disposable income relative of world economic conditions and inclusion of archaeological sites related to logging activities, especially those with good time markers from the 1890s or 1930-1940s.

Property Types: Mine Exploration and Mine Development and Mine Related.

PROBLEM DOMAIN VI: THE HISTORIC MINING LANDSCAPE

The problem domain of the Historical Mining Landscape could fit under any of the problem domains listed above. Mining landscapes are the result of mining development and community development. However, for management purposes landscapes need to be addressed separately for NRHP eligibility, documentary and archaeological research potential and holistic landscape and sustainable ecosystem management. Mining activity is representative of human activity that significantly modifies the natural features resulting in many mining properties qualifying as historic landscapes. As National Register Bulletin 42 states:

> Landscapes may represent the most dramatic visual images of mining. Mining landscapes evoke images of time, place, and historical patterns associated with past mining epochs. Mining landscapes might include ravaged landscapes denuded by nineteenth-century hydraulic mining in the Mother Lode region of California, barren strip-mining landscapes of West Virginia, gaping holes in the earth characteristic of open-pit mining landscapes found in places such as Bingham Canyon in Utah and the Mesabi Range in Minnesota, and dredging landscapes in Alaska characterized by mounded tailings piles lining great stretches of creek and river beds. In addition to the visual impact of the mining landscape, the land forms created by mining provide clues to past activity. Spoils piles often indicate the location of adits and shafts, and placer tailings can help define the methods used to mine a stream even if few artifacts are present. (13-14).

Mining landscapes are considered to be a subtype of a rural landscape National Register Bulletin 30 (29-30). A rural historic area is defined as "a geographical area that historically has been used by people, or shaped or modified by human activity, occupancy, or intervention, and that possess a significant concentration, linkage, or continuity of areas of land use, vegetation, buildings and structures, roads and waterways, and natural features." (p. 1). Cultural landscapes can take many different shapes, forms or philosophical orientations. For example, an ethnographic landscape is a "landscape as seen through the eyes of a specific culture, or a combination of several specific cultures." In this meaning, the landscape would have associations with a specific cultural or ethnic community or be the home to a specific cultural or ethnic group. While the Study Area may have been inhabited by a number of ethnic groups, no documentary evidence indicates the presence of an ethnographic landscape. Residence in the Study Area was governed by

economics, occupation and a variety of other choices and forces. Locale appears to have been almost accidental, i.e., because of suspected or actual ore deposits. The life of many communities was too short to see movement within the community and up and out of the community other than during abandonment.

However, it does appear that one can conclude that a natural landscape, used and altered by occupation, existed for parts of the Study Area. The possibility of the existence of a vernacular landscape or a geographic area associated with the demographic, social and economic development of a region. For parts of the Study Area, the ore deposits were key factors in town location and growth.

A rural historic landscape is defined as "a geographical area that historically has been used by people or shaped or modified by human activity, or intervention, and that possess a significant concentration, linkage or continuity of areas of land use, vegetation, buildings and structures, roads and waterways and natural features" (National Register Bulletin 30:2). To determine whether a rural historic landscape meets these definitions, 11 characteristics are considered. Land uses and activities for many parts of the Study Area appear to be without a clear linkage. The land use and activities are changeable, difficult to document and appear without clear definition. Key factors include land use and activity, patterns of landscape spatial organization and response to natural environments and cultural traditions.

Land use pattern evolution relates directly to changing mining technology and subsequent changes in land use patterns. Boom-bust mining cycles affect land use variability as does tourism. Landscape spatial organization relating to industrial mining patterns and subsistence mining pattern may be apparent in the Study Area. The industrial mining pattern is often characterized by an urban center or corridor and several settlements around mines and mills. Subsistence mining is generally associated with a less centralized pattern of settlement. These patterns have changed over time and the archaeological evidence may provide information about these changes. The geology and geography of the Study Area often dictated mining methods and settlement patterns which effected landscape modification. If geology and geography dictate patterns and methods of mining in the Study Area, then the historical landscape is reflective of human adaptation to the environment. Cultural traditions may reflect the role of a particular ethnic group in landscape continuity or change. For example, what role did ethnic Chinese play in maintaining the practice of mining placer deposits in various landscapes when parallel large-scale industrial lode mining occurred? What effect did the Chinese concept of sacred geography have on mine and house placement? Can traditional vernacular architecture of mining be associated with particular ethnic groups?

Other factors pertinent to landscape include circulation networks including the movement of people, supplies, water and mined resources. Boundary demarcation may include a mining claim or a district and may be indicative of legalistic networks as well as commercial boundaries.

Variability and change in vegetation patterns is another issue of concern for mining landscapes. The vegetation pattern prior to mining activity may be a standard against which change may be measured. The resultant use of forests for wood cutters for construction, fire wood etc. when combined with naturally occurring forest fires may also have changed the landscape. The evolution of the mining landscape is also reflected in buildings, structures, and objects. The distribution of these spatial forms, through times, may correspond to variability and change in sequential patterns of development.

Data Requirements:

Archival: Gazetteers, newspaper accounts, property ownership records, government documents, company housing records and census data, diaries, union records, background sources.
Oral: Oral histories from former residents involved with logging or similar industries.
Cultural Resources: Sites, features and artifacts that are dateable and associated with subsistence, household/domestic, personal and leisure/recreation artifacts interpretable over time and reflecting the changes in the amount of disposable income relative of world economic conditions and inclusion of archaeological sites related to all three property types associated with production to support mining.

Property Types: Mine Exploration and Mine Development/Mine Related

Section 5
Draft Memorandum of Agreement

PROGRAMMATIC AGREEMENT
Among
UMATILLA NATIONAL FOREST, JOHN DAY RANGER DISTRICT
MALHEUR NATIONAL FOREST, LONG CREEK RANGER DISTRICT,
UNITED STATES FOREST SERVICE
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
and
THE OREGON STATE HISTORIC PRESERVATION OFFICE
ON THE MANAGEMENT OF HISTORIC MINING CULTURAL RESOURCES

WHEREAS, the Umatilla National Forest, John Day Ranger District and Malheur National Forest, Long Creek Ranger District, United States Forest Service (U.S.F.S.) determined that the routine management of historic mining cultural resources will have an effect on historic properties listed in or eligible for the National Register and has requested the comments of the Advisory Council on Historic Preservation (Council) and the Oregon State Historic Preservation Office (SHPO) pursuant to Section 106 and Section 110(f) of the National Historic Preservation Act (16 USC 470) and its implementing regulations "Protection of Historic and Cultural Properties" (36 CFR Part 800); and

WHEREAS, for purposes of this agreement, the historic mining properties includes those properties determined as individually eligible or contributing resources to National Register Historic Districts,

NOW, THEREFORE, the U.S.F.S., the Council and the SHPO agree that undertakings shall be implemented in accordance with the following stipulations in order to take into account the effect of any future proposed undertakings on historic properties.

I. APPLICATION

1. This agreement, and the plan specified in this agreement, is applicable to all operations and maintenance undertakings which may affect historic mining properties.

2. This agreement does not apply to new construction projects (including additions to historic structures) or operations and maintenance projects which are not covered by, or conducted in accordance with, the appendices to this agreement, the procedures agreed upon pursuant to the Plan. 'Section 106 review' of such undertakings shall follow the procedures in 36 CFR Part 800.

II. CULTURAL RESOURCES MANAGEMENT/HISTORIC PRESERVATION PLAN

1. The U.S.F.S. will prepare a comprehensive Management Plan for Historic Mining Properties, North Fork John Day Ranger District, Umatilla National Forest and Long Creek Ranger District, Malheur National Forest, (Plan), which specifies the procedures to be followed in the identification, evaluation and treatment of all historic mining properties, under its jurisdiction.

2. This document and the policies outlined in the Cultural Resources Management/Historic Preservation Plan will be in force immediately upon the final signature to this agreement and will be incorporated into the Historic Preservation Plan. Undertakings developed in conformance with the Plan or any future procedures incorporated into this agreement, will be considered 'No Adverse Effect' and will require no further consultation with the SHPO or the Council except as may be specified in the procedures themselves. The U.S.F.S. will consult with the SHPO and the Council, following the procedures in 36 CFR Part 800, if U.S.F.S. determines that an undertaking will result in an 'adverse effect' to a historic mining property. The U.S.F.S. will consult with the Council and the SHPO, if U.S.F.S. determines that an undertaking is not covered by the Plan.

3. Upon completion of the draft Plan, U.S.F.S. will forward a copy of the Plan to SHPO for review and comment. SHPO will provide its comments within 30 days of receipt of the document. After its review by SHPO, U.S.F.S. will forward the plan and the SHPO comments to the Council for review. The Council will provide its comments within 30 days of receipt of the Plan. U.S.F.S. will consult with the Council and the SHPO to resolve any disputes concerning the contents of the Plan and will prepare the final Plan within 30 days of the resolution of any disputes, incorporating the resolutions into the final plan.

4. U.S.F.S. will consult with the SHPO and the Council when the undertaking is of substantial magnitude or complexity, involves unusual issues or public controversy related to historic mining properties, or that otherwise would be considered suitable for a Programmatic Agreement pursuant to 36CFR800.13. U.S.F.S., SHPO or other interested persons may request the Council's involvement at any time during the consideration of a project. The Council, at its discretion may choose to participate in any phase of undertaking review for purposes of the National Historic Preservation Act.

5. Whenever reasonable and prudent, U.S.F.S. will reuse historic structures for compatible functions. When reuse is not possible, new construction will be considered. When neither of these options are reasonable or prudent, new construction on the site of a previously removed historic structure or further modification of a previously altered structure will be considered. Other new construction will be considered only after these options have been fully explored.

6. Provision is made for historic mining property demolition as a last and least-preferable treatment option requiring U.S.F.S. Forest Supervisor approval and supporting written documentation to be

provided by John Day Ranger District or Long Creek Ranger District if evidence is provided that the structure is unsound and unsafe.

7. U.S.F.S. will consult with the SHPO and the Council if new construction is proposed near any National Register Historic District boundary. All new construction will, to the maximum extent possible, be designed to be compatible with the existing historic structures in design, siting, scale, mass, detail, material, texture and color.

IV. TRAINING AND QUALIFICATIONS OF PERSONNEL

1. U.S.F.S. shall provide training to building managers in the requirements of this agreement and the appropriate techniques and methods of historic preservation maintenance and operations pertinent to the historic mining properties. Training shall consist of video or film presentations, hands-on practice, formal or informal lectures, presentations, seminars or classroom sessions, or written materials, and will be appropriate to the person's duties. Training may be provided on or off site. Each person assigned duties in the direct maintenance or operation of historic properties and all building managers shall receive a minimum of 1 hour of training each calendar year.

V. ADMINISTRATIVE PROCEDURES

1. Much of the North Fork John Day Ranger District and the Long Creek Ranger District have been surveyed by 100% pedestrian (Class III) cultural resource surveys and all cultural resources visible on the surface have been identified and recorded. Records searches at the SHPO Records Office for individual undertakings in surveyed areas of the Ranger Districts are not required.

2. U.S.F.S. shall ensure that the unsurveyed areas of the Ranger District's will be surveyed in a manner consistent with the Secretary of the Interior's Standards for Identification (48FR44720-23) and taking into account NPS Publication, The Archeological Survey: Methods and Uses (1978: GPO stock #024-016-00091) and the Oregon SHPO guidelines. The survey shall be conducted in a manner consistent with the Plan and in consultation with the SHPO and a report of the survey, meeting the standards of the SHPO, shall be submitted to the SHPO for review and approval.

3. U.S.F.S. shall identify properties identified through the survey in accordance with 36CFR800.4(c). If the survey results in the identification of properties that are eligible for the National Register, U.S.F.S. shall comply with 36CFR800.5.

4. At least one (1) copy of this agreement, the appendices, any future procedures agreed to under part II of this agreement, and the Plan shall be distributed to North Fork John Day Ranger District and Long Creek Ranger District Archaeologists. Maintenance and/or Operations Supervisor having any maintenance, repair, construction or operations responsibilities to notify them of this agreement and the compliance procedures it requires.

5. U.S.F.S. shall provide to SHPO and the Council by 31 January of each year a report on the activities conducted under the terms of this agreement for the preceding fiscal year ending 31 September. The report shall include the name and/or project number of each undertaking initiated during the fiscal year, the current planning or implementation status of the project, whether the project resulted or will result in 'no effect' or 'no adverse effect' to historic properties, and any other pertinent information about the '106 review' status of the project.

6. This agreement shall be reviewed by the parties two years after the date of the final signature in order to assess its usefulness, efficiency and suitability, and to prepare amendments or revisions to the agreement if necessary. The agreement shall be reviewed every five years thereafter.

VI. DISCOVERIES

If unanticipated discoveries of historic properties are encountered during the implementation of an undertaking, or if known historic properties are affected in an unanticipated way, U.S.F.S. will consult with the SHPO and the Council in accordance with 36CFR800.11.

VII. DISPUTE RESOLUTION

1. Should any party to this agreement object to the procedures used or the decisions made under the terms of this agreement, the objecting party shall notify the other parties and shall consult with the other parties in order to resolve the objection. If the objection cannot be resolved within 30 days, U.S.F.S. shall forward all documentation to the Council. Within 15 days of receipt of the documentation, the Council will either:

a. Provide U.S.F.S. with recommendations to take into account in reaching a final decision regarding the dispute; or

b. Notify U.S.F.S. that it will comment pursuant to 36CFR800.6(b), and proceed to comment. Council comments shall be taken into account by U.S.F.S. in accordance with 36CFR800.6(c)(2).

2. Recommendations or comments provided by the Council pertain only to the subject of the dispute. It is U.S.F.S. responsibility and authority to carry out all actions under this agreement that are not a subject of dispute shall remain unchanged.

3. At any time during the implementation of the measures stipulated in this agreement, should an objection be raised by a member of the public or a Native American tribe or organization, U.S.F.S. shall take the objection into account and consult as needed with the Council, the SHPO or the objecting party to resolve the objection.

VIII. FAILURE TO COMPLY

Failure to carry out the terms of this agreement requires that U.S.F.S. request the Council's and SHPO's comments pursuant to 36CFR800. If U.S.F.S. cannot, or chooses not to, carry out the terms of this agreement in whole or in part, or for a specific undertaking, it shall not sanction or take any action or make any irreversible commitment that would result in an adverse effect to any historic mining property. U.S.F.S. may choose to follow the procedures in 36CFR800 for any specific undertaking, whereupon U.S.F.S. shall notify the Council and the SHPO that the procedures in 36CFR800 will be followed and begin the consultation process.

IX. AMENDMENTS

This agreement may be modified or amended at any time by mutual agreement of all signatories. Any party to this agreement may propose to the other parties that it be amended, whereupon the parties will consult in accordance with 36CFR800.5(e) to consider such amendment.

X. TERMINATION

Any party to this agreement may terminate it by providing at least 30 days written notice to the other parties stating the reason for the termination and the effective date of termination. The parties will consult during the period prior to termination to seek agreement on amendments or other actions that will avoid termination. In the event of termination, U.S.F.S. will consult with the Council and the Oregon SHPO and will determine how to carry out U.S.F.S. responsibilities under Section 106 in a manner consistent with applicable provisions of 36CFR800.

XI. COMPLIANCE COSTS

Costs of complying with this agreement for individual undertakings are part of the cost of the individual undertaking and shall be borne by the appropriate project funding organization or proponent.

Execution and implementation of this Programmatic Agreement evidences that U.S.F.S.has satisfied its Section 106 responsibilities for all individual undertakings covered by this agreement.

_____

North Fork John Day Ranger District, Forest Supervisor (date)

_____

Long Creek Ranger District, Forest Supervisor (date)

Oregon State Historic Preservation Officer (date)

Advisory Council on Historic Preservation (date)

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Appendix I
Tables 1, 2 and 3

Introduction
Summary of Recorded Mining Sites and Priorities for Their Treatment

The following three sets of tables (1, 2 and 3) are cumulative in relation to each other. Table 1 is a summary of all recorded mining and mining related sites for the Study Area. Table 2 summarizes, by site, those recommended as eligible for inclusion in the National Register of Historic Places and Table 3 is really a series of tables listing sites by treatment and priority. Following established regulatory procedures, those sites considered as not eligible have been eliminated from table 3 as not needing protection or treatment. These priorities recognize the decreasing funding levels of the 1990s that will be available for Forest managers for preservation. As a result, the highest priorities are for the preservation through techniques such as passive protection, photo-documentation or stabilization. Two distinct groupings of historic sites have been derived from Tables 1 and 2. One grouping is of sites which are important examples of local mining technologies or processes. The second grouping is of those sites that are important as examples of workers housing. In both cases a heavy emphasis was placed on site integrity as described on the site records.

During the 1990s more than ever before managers must assess historic cultural resources for integrity relative to visibility and focus. Seven elements of integrity are identified by the National Register of Historic Places (NRHP): location, design, setting, materials, workmanship, feeling and association. Considerations of "integrity" depend upon the National Register criterion used to evaluate significance and upon whether the property is architectural or archaeological. The specific ways in which the elements of integrity may be applied to the property types are discussed below. When assessing the integrity of a mining property or mining associated properties it is critical to remember that the property should be evaluated individually as a potential resource within a district. Although individual components may appear to lack distinction, the combined image of the separate components may enable the property to provide a collective image of a historically significant mining operation. The whole of the property is thus greater than the sum of its parts.

The integrity of mining related properties often involves not so much the condition of extant buildings, but rather the degree to which the overall mining system remains intact and visible. Evaluation of integrity requires a holistic outlook that allows all the component parts of a mining system to be considered. If clear physical evidence of a complete cohesive system remains intact, deterioration of individual aspects of the system may not eliminate the overall integrity of the resource.

Table 2 contains a summary of the eligible sites in the Study Area. In order to bring the significance evaluations into better focus a set of guidelines was presented earlier for historic properties. These guidelines are designed to provide managers with a framework for prioritizing sites utilizing the context and research design in this document. These guidelines are not immutable and are not intended to replace or circumvent the established State Historic Preservation Office/Advisory Council review and evaluation process. Individual cultural

resources must be judged ultimately on the basis of their own merits.

Key for Table 1

Column 1- Agency Site Number - from Site Forms

Column 2 - Description - from Site Forms

Column 3 - Site Type - from Site Forms

1.0 Mine Exploration Sites

- 1.1 Prospects
- 1.2 Waste rock dumps/tailings
- 1.3 Trenches
- 1.4 Bulldozer cuts
- 1.6 Trash dump
- 1.9 Ditch
- 1.10 Claim post/sign
- 1.11 Mining debris
- 1.12 Isolate associated with mining exploration sites
- 1.13 Other exploratory sites (includes several of the above)

2.0 Mine Development Sites

- 2.1 Placer mines
- 2.2 Deep industrial mines
- 2.3 Rat-hole underground mines
- 2.4 Surface mines (adits, pits)
- 2.5 Mill sites
- 2.8 Water engineering sites
- 2.10 Other development sites (includes several of the above)

3.0 Other Site Types

- 1.5 Tent platform/pad (with trash)
- 1.7 Building platform/structure (with trash)
- 1.8 Habitation site with remains of mining debris or feature
- 2.6 Domestic household sites
- 2.7 Transportation sites
- 2.9 Services sites

Column 4 - Property Type - from Site Form Descriptions and Property Types in Management Plan Document

- 1.0 Mine Exploration
- 2.0 Mine Development (Beneficiation)
- 3.0 Other

Column 5 - from Site Forms

Arch = Archaeological site or feature
Bldg = Building or architectural site or feature

Column 6 - Condition of Site (integrity); from Site Forms

0 Unknown (no information provided)
1 Excellent
2 Good
3 Fair
4 Poor
5 Extremely Poor

Column 7 - from Site Forms

National Register Eligible = E

Not Eligible for Nomination to the National Register = NE

Column 8 - from Site Forms

Criteria (if eligible) = a, b, c, d

Column 9- from Site Forms/maps

USGS Quad (Unless otherwise specified, these are 7.5')

1 Ukiah SE 1967
2 The Cockscomb (Formerly Dale NE) 1990
3 Kelsay Butte (formerly Desolation Butte NW) 1988
4 Dale 1951 - 15'
5 Dale NE 1951
6 Desolation Butte NW 1951 - 15'
7 Trout Meadows 1972
8 Dale SE 1951, 1982
9 Desolation Butte Provisional 1988
10 Desolation Butte NE 1951
11 Desolation Butte SE 1951 or 1957/1984
12 Olive Lake Provisional
13 Granite 1972
14 Granite 1983
15 Desolation Butte 1951
16 Bates 1951 - 15'
17 Greenhorn 1984
18 Vinegar Hill Provisional 1988
19 Mt. Ireland 1972
20 Susanville 1949-15'
21 Sharp Ridge 1990
22 Susanville 1990
23 Boulder Butte 1988
24 Bates 1988 - 7.5'
25 Long Creek 1949 - 15'
26 Bates NE 1951
27 Courtrock 1951 - 15'

Note: 0007, 0008, and 0009 listed as Bates 7.5' rather than 15' as listed in update but on table as 15'.

Column 10 - Reference - from Site forms

Table I - Recorded Historic Mining Sites and Pertinent Information

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
Umatilla National Forest - North Fork John Day Ranger District									
6S32E-26/1 L36B	Mining Ditch	1.9	I	A	0	NE		1	GLO - 01/07/1884 Recorded by CRC 1978
6S32E-27/3 DA1	Lost Dollar Placer	2.1	2	A	4	NE		1	Master Title Plan-Lost Dollar Placer
6S32E-28/3	Placer Mining Debris	2.1	2	A	4	NE		1	Popek and Moore 1993
6S32E-35/1	Five Cabins	1.8	3	B	2	E	a,d	1	Beidl 1992

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
6S32E-35/2	Dredge Tailings	1.2	1	A	4	NE		1 2 3	Beidl 1993
7S31E-1/3 L41	Old Mining Ditch	1.9	1	A	0	NE		4	GLO 1881
7S32E-1/1	Ditch	1.9	1	A	4	NE		5	Popek 1992a
7S32E-1/2	Cabin	1.8	3	B	4	E	a,c,d	5	Popek 1992a
7S32E-1/3	Ditch	1.9	1	A	3	NE		5	Popek 1992a
7S33E-3/1	Ditch	1.9	1	A	3	NE		6	Popek 1992b
7S33E-6/1	Ditch with Metal Pipe	1.9	1	A	4	NE		5	Wilburn 1986
7S33E-6/2 UK44	Cabin & Prospect	1.8	3	B	0	E	a,c,d	4	Reid et al. 1993
7S33E-6/3	Habitation site w/mining feature	1.8	3	B	2	E	a,d	2	Reid et al. 1993
7S33E-8/1 DA13	Cabin	1.8	3	B	3	E	a,c,d	2	Popeck 1992a; Reid et al. 1993

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
7S33E-8/2	Mining Debris	1.8	3	A	3	NE		2	Reid et al. 1993
7S33E-9/2 UK46	Dredge Camp	1.8	3	B	4	E	a,c,d	3	Recorded by CRC 1978; Reid et al. 1993
7S33E-9/3	Mining claim sign	1.10	1	A	4	E	a	3	Recorded by GMP, JB 1993
7S33E-9/3	Habitation site with mining feature	1.8	3	A	3	E	a,d	3	Reid et al. 1993
7S33E-10/1 UK47	Miner's cabin	1.8	3	A	3	E	a,d	3	Recorded by CRC 1978; Reid et al. 1993
7S33E-10/2 UK48	Walt Allison's Mining Claim	1.0	1	A	0	E	a,d	3	Recorded by CRC 1978; Reid et al. 1993
7S33E-10/4	Mining debris	1.11	1	A	4	NE		3	Reid et al. 1993

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
7S33E-28/1	Mining Prospect	1.1	1	A	3	NE		3	Powell et al. 1991; Moody 1993a
7S33E-28/2	Solder seal can	1.12	1	A	0	NE		2	Powell et al. 1991
7S34E-13/1 DA17	Miner's cabin	1.7	3	B	0	E	a,c,d	6	Recorded by CRC 1978
7S34E-18/1	Cable Crossing Cabin	1.8	3	B	3	NE		6	Vaughan 1988; Burney 1991
7S34E-20/1	Dugout Rock Cabins	1.8	3	B	4	NE		6	Vaughan 1988; Burney 1991
7S34E-28/1	Fitzwater Gulch Cabin	1.8	3	A	3	NE		6	Vaughan 1988; Burney 1991
7S34E-28/2	Cougar Placer Operation	2.10	2	A	3	E	c, d	6	Vaughan 1988; Burney 1991
7S34E-34/2	Murphy's Cabin	1.8	3	B	4	NE		6	Vaughan 1988; Burney 1991

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
7S35E-25/1 DA22	Trout Creek Cabin	1.8	3	B	5	E	a,b,c	7	Vaughan 1988; Burney 1991
735E-25/2	Upper Trout Creek Cabin	1.8	3	B	3	E	a,c,d	7	Vaughan 1988; Burney 1991
7S35E-25/3	East End Flume & Ditch	1.9	1	A	3	E	c	7	Vaughan 1988; Burney 1991
7S35E-25/4	Blue Heaven Cabin	1.8	3	B	5	NE		7	Vaughan 1988; Burney 1991
7S35E-35/1	NW of SE 35 Flat Cabin Site	1.8	3	A	2	NE		7	Vaughan 1988; Burney 1991
7S35E-35/2	SE of SW 35 Flat Cabin Site	1.8	3	A	2	NE		7	Vaughan 1988; Burney 1991
7S35E-35/3	SW Spring Structural Flat Site	1.8	3	A	2	NE		7	Vaughan 1988; Burney 1991
7S35E-35/4 L41A	Ditch	1.9	1	A	0	NE		7	Recorded by CRC 1978

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
7S35E-36/1	Pippin Cabin	1.8	3	B	3	E	a,c,d	7	Vaughan 1988; Burney 1991
7S35E-36/2	High Placer Site	1.8	3	A	3	NE		7	Vaughan 1988; Burney 1991
7S35E-36/3	35 Dugout Cabin	1.8	3	A	3	NE		7	Vaughan 1988; Burney 1991
7S35E-36/4	Wagon Site	1.13	1	A	2	E	a, b, c, d	7	Vaughan 1988; Burney 1991
7S35E-36/5	Pole Frame 36 Site	1	3	A	3	NE		7	Vaughan 1988; Burney 1991
7S35E-36/6	South Side River Site	1.13	1	A	1	NE		7	Vaughan 1988; Burney 1991
7S35E-36/7	Thornburg Sawmill	2.10	2	A	2	NE		7	Vaughan 1988; Burney 1991

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
7S35.5E-27/1	Chinese mining & habitation	1.13	1	A	3	E	a,d	7	Vaughan 1988; Burney 1991
7S35.5E-28/1	Outhouse site	1.13	1	A	3	NE		7	Vaughan 1988; Burney 1991
7S35.5E-28/2	Brothers cabin	1.7	3	B	4	NE		7	Vaughan 1988; Burney 1991
7S35.5E-33/1	Friendship placer cabin	1.7	3	B	4	NE		7	Vaughan 1988; Burney 1991
7S35.5E-33/2	Ditch	1.9	1	A	0	NE		7	GLO 09/01/1884 Recorded by CRC 1978
7S35.5E-34/1	Pole frame 34 site	1.8	3	A	3	NE		7	Vaughan 1988; Burney 1991
7S35.5E-34/5	Klopp & Baisley placer mine	2.1	2	A	0	NE		7	GLO 09/01/1884; Recorded by CRC 1978

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
7S35.5E-34/6	Minng Ditch Tickler	1.9	1	A	0	NE		7	GLO 09/01/1884; Recorded by CRC 1978
7S35.5E-34/7	Historic cabin & other features	1.13	1	A	3	E	a,d	7	Stone 1990
7S35.5E-35/1	Old placer mine	1.9	1	A	0	NE		7	GLO 09/01/1884; Recorded by CRC 1978
8S33E-7/1 DA39	Blue Bucket mine	2.4	2	A	2	NE		2	Recorded by K. Hancock 1990; Moody 1993a
8S33E-7/2	Historic trail	2.7	3	A	3	E	a	2	Moody 1993a
8S33E-7/3	Mining activity-other exploratory site	1.13	1	A	0	E	a,d	2	Moody 1993a

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
8S33E-7/4	Corner marker-claim post/sitn	1.10	1	A	3	E	a	2	Moody 1993a
8S33E-9/1 DA40	Cabin	1.7	3	B	3	E	a,c,d	3	Recorded by CRC 1978; Moody 1993a
8S33E-9/2 DA41	Welch Creek mine & cabin	2.10	2	A	2	E	a,d	3	Recorded by CRC 1978; Moody 1993b
8S33E-14/1 DA43	Prospect	1.1	1	A	0	NE		6	Recorded by CRC 1978
8S33E-18/3	Tipple mining structure	2.3	2	A	3	E	a,d	8	Donahue 1985; Moody 1993b
8S33E-19/1	Ditch	1.9	1	A	3	NE		8	Donahue 1985; Moody 1993b
8S33E-19/2	Keeney Mine	1.8	3	B	3	E	a,d	8	Brown 1990; Moody 1993b
8S33E-26/1	Mine pit	2.4	2	A	3	NE		9	Bryam et al. 1991; Moody 1993b

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
8S34E-3/1	Faulkner Gulch Cabin	1.7	3	B	3	NE		10	Vaughan 1988; Burney 1991
8S34E-3/2	Dixon Bar	2.1	2	A	3	NE		10	Vaughan 1988; Burney 1991
8S34E-13/1	Mustang cabin	1.8	3	B	4	NE		10	Vaughan 1988; Burney 1991
8S34E-14/1	Silver Creek cabin	1.8	3	B	4	NE		10	Vaughan 1988; Burney 1991
8S34E-14/3	South Side adit	2.4	2	A	4	NE		11	Vaughan 1988; Burney 1991
8S34E-24/3	West of Granite cabin	1.7	3	A	3	NE		11	Vaughan 1988; Burney 1991
8S34E-29/2	Mining pit	1.1	1	A	3	NE		9	Byram et al. 1991
8S34E-29/3	Multi-component site	1.1	1	A	3	NE		9	Byram et al. 1991

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
8S34E-30/1 DA50	Skinner mine & cabin	2.10	2	B	3	E	a,c,d	9	Recorded by CRC 1978; Hallisy 1980; Byram et al. 1991
8S34E-30/3	Mining pit	1.1	1	A	3	NE		9	Byram et al. 1991
8S34E-30/5	Mining pit	1.1	1	A	3	NE		9	Byram et al. 1991
8S34E-33/6	5 Mining pits	2.4	2	A	3-4	NE		12	Byram et al. 1991
8S34E-34/1	Lode Mine claim (JFK Mines)	2.4	2	A	2-3	NE		11	Morgan 1989
8S34E-34/2	Campsite	1.6	1	A	3	E	a,d	11	Morgan 1989
8S35E-3/1	East Thornburg adit	1.8	3	A	3	E	a,b,c, d	7	Vaughan 1988; Burney 1991
8S35E-3/2 DA52	North Thornburg operation	1.7	3	A	2	NE		7	Vaughan 1988; Burney 1991

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
8S35E-3/3 DA53	East Side Thornburg cabin	1.7	3	B	3	E	c,d	7	Vaughan 1988; Burney 1991
8S35E-3/4	Thornburg Village	1.7	3	A	3	E	a,b,d	7	Vaughan 1988; Burney 1991
8S35E-3/5	Dragline operation	2.10	2	A	3	E	a, c	7	Vaughan 1988; Burney 1991
8S35E-3/6	Downslope cabins & dump	1.7	3	A	3	E	d	7	Vaughan 1988; Burney 1991
8S35E-9/1	Miner Blackwell cabin	1.7	3	B	3	NE		10	Vaughan 1988; Burney 1991
8S35E-10/1	Cache cabin	1.8	3	B	4	NE		7	Vaughan 1988; Burney 1991
8S35E-10/2	West of Wagner cabin	1.13	1	B	4	NE		7	Vaughan 1988; Burney 1991

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
8S35E-10/4	South Thornburg operation	2.10	2	A	3	E	a,b,d	7	Vaughan 1988; Burney 1991
8S35E-10/5 DA55	Crane Ditch cabins	1.8	3	A	3	E	a,d	7	Recorded by CRC 1978; Vaughan 1988; Burney 1991
8S35E-10/6	Crane Flat site	1.5	1	A	3	NE		7	Vaughan 1988; Burney 1991
8S35E-13/1 or 8S35.5E-13/1	Big Four Mine	2.0	2	A	0	NE		13	Recorded by CRC 1978; Burney 1991
8S35E-16/1	Driveshaft site	1.13	1	A	2-3	NE		10	Vaughan 1988; Burney 1991
8S35E-16/2	Carnley Bend Site	1.8	3	A	3	NE		10	Vaughan 1988; Burney 1991
8S35E-17/2	Bear Gulch cabin	1.7	3	B	4	NE		10	Vaughan 1988; Burney 1991

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
8S35E-18/1	Spoke site	1.7	3	A	3	NE		11	Vaughan 1988; Burney 1991
8S35E-18/2	North Side cabin flat	1.7	3	A	3	NE		11	Vaughan 1988; Burney 1991
8S35E-18/3 DA58	Gutridge mine	2.13	2	A	3	NE		11	Recorded by CRC 1978; Vaughan 1988; Burney 1991
8S35E-19/1	Granite Creek Mobile #2	1.8	3	B	4	NE		11	Vaughan 1988
8S35E-26/1 L46, L47, L48	Dredge tailings	1.2	1	A	5	NE		14	Recorded by CRC 1978; Popek 1993
8S35E-27/2	Ditch	1.9	1	A	2	NE		14	Popek 1993
8S35E-27/4	Ditch	1.9	1	A	3	NE		14	Popek 1993
8S35E-29/1	Log cabin	1.7	3	A	3	E	a,d	11	Hallisy 1982
8S35E-29/2	Trammel Hopper	2.0	2	A	0	E	a,d	11	Clapp and Keith 1991; Popek 1993-U

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
8S35E-29/3	Cabin	1.7	3	B	4	E	a,c,d	12	Popek 1993
8S34E-29/4	Miner's homestead	1.7	3	B	4	E	a,c,d	12	Popek 1993
8S35E-30/1	Granite Creek Mobile #1	1.13	1	B	5	NE		11	Vaughan 1988; Burney 1991
8S35E-31/01	Goldbug mine	2.4	2	A	2	E	a,d	11	Hallisy 1981
8S35E-34/1 L46A See 8S35E-261	Ditch	1.9	1	A		NE			
8S35E-35/1 L46B Goes into 8S35, 5E-28	Ditch	1.9	1	A		NE			
8S35.5E-21/1	Ten Cent Creek Cabin	2.10	2	B	3	E	a,c,d	13	White 1986; Popek 1993-U
8S35.5E-21/2	Adit	2.4	2	A	2	NE		14	Popek 1993
8S35.5E-22/1	Ditches & pipeline	1.13	1	A	3	E	a,d	13	White 1986; Popek 1993

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
8S35.5E-22/2 DA64, DA65	Magnolia & Ajax mines	2.10	2	B	3	E	a,c,d	13	Recorded by CRC 1978; White 1986
8S35.5E-22/3 DA62, DA66	Indepen-dence mine	2.10	2	B	3	E	a,c,d	13	Recorded by CRC 1978; White 1986
8S35.5E-22/4	Stamp mill & China Gulch	2.10	2	B	3	E	a,c,d	13	White 1986
8S35.5E-22/5 DA63	Lucas Gulch Cabin Disposal	1.7	3	B	3	E	a,c,d	14	Recorded by T.Fulgham 1988; Popek 1993-U
8S35.5E-22/6	Telephone line	2.9	3	A	2	NE		14	Popek 1993
8S35.5E-23/1	Charlie Cree Cabin	2.10	2	B	2-3 U2-3	E	a,d	13	White 1986; Popek 1993-U
8S35.5E-27/1	Log structure & trash	1.8	3	A	2	E	a,d	14	Recorded by CRC 1978; Popek 1993
8S35.5E-27/2	Adit/pit	2.4	2	A	2	NE		14	Popek 1993

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
8S35.5E-28/1 DA67, DA69, DA70, L46C	Preston's Place	2.10	2	B	3	E	a,c,d	13	White 1986; Taylor 1992-U
8S35.5E-28/2 DA68	Ditch	1.9	1	A	0	NE		13	Recorded by CRC 1978
8S35.5E-33/3	Ditch	1.9	1	A	2	NE		14	Popek 1993
8S35.5E-33/4	Ditch	1.9	1	A	2	NE		14	Popek 1993
8S35.5E-33/5	Ditch	1.9	1	A	3	NE		14	Popek 1993
8S35.5E-33/6	Ditch	1.9	1	A	4	NE		14	Popek 1993
8S35.5E-34/1	Mine with structures	1.8	3	A	3	E	a,d	14	Recorded by Robert Clapp 1991; Popek 1993-U

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
9S34E-3/1	Chrome Springs Camp	1.13	1	A	0	E	a,d	15 U-12	Recorded by Thomas E. Lupes 1978, 1979; Byram et al. 1991-U
9S34E-3/2 DA72	Chance Spring Camp	1.13	1	A	0	E	a,d	15	Recorded by CRC 1978
9S34E-15/2 DA78	House	1.7	3	A	0	E	a,d	15	GLO 11/24/1884; Recorded by CRC 1978
9S34E-15/3 L47A	Ditch	1.9	1	A	0	NE		15	Recorded by CRC 1978
9S34E-25/1 L47B	Mining Ditch	1.9	1	A	0	NE		15	GLO 11/24/1884; Recorded by CRC 1978
9S34E-25/2 L47C	Mining Ditch	1.9	1	A	0	NE			GLO 11/24/1884; Recorded by CRC 1978

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
9S34E-30/1 DA80	Donaldson Mine & Cabin	1.8	3	A	0	E	a,d	15	Recorded by CRC 1978
9S34E-34/1 DA81	Mine	2.0	2	A	0	NE		16	Recorded by CRC 1978
9S34E-35/1 DA82	Mine	2.0	2	A	0	NE		16	Recorded by CRC 1978
9S35E-2/1 DA85	2 Mines	2.0	2	A	0	NE		13	Recorded by CRC 1978
9S35E-2/2 L48	Ditch	2.1	2	A	0 5-U	NE		13 14-U	Recorded by CRC 1978; Fulgham 1989-U; Popek 1993-U
9S35E-2/3	Ditch	1.9	1	A		NE			
9S35E-3/1 DA86	Tailings piles	2.0	2	A	0 4-U	NE		13 14-U	Recorded by CRC 1978; Popek 1993-U
9S35E-3/3	Adit	2.4	2	A	4	NE		14	Popek 1993
9S35E-4/1 DA87	Portland mine	2.0	2	A	0	NE		15	Recorded by CRC 1978; Popek 1993-U

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
9S35E-5/1	Mineral testing features	1.3	1	A	4	NE		12	Popek 1993
9S35E-6/2	Ditch	1.9	1	A	4	NE		12	Popek 1993
9S35E-8/2	Trash scatter	1.6	1	A	2	E	a,d	12	Popek 1993
9S35E-9/1 DA88	Fremont power-house	2.9	3	B	3	NE	c,d	12	Byram et al. 1991; Popek 1993-U; Beidl 1993-U
9S35E-9/2	Adit tailings	2.4	2	A	4	NE		12	Popek 1993
9S35E-9/3	Adit	2.4	2	A	3	NE		14	Popek 1993
9S35E-9/4	Trash scatter	2.4	2	A	2-3	E	a,d	14	Popek 1993
9S35E-10/2	Adits	2.4	2	A	2	NE		14	Popek 1993
9S35E-10/3	Adits	2.4	2	A	2	NE		14	Popek 1993
9S35E-10/4	Adits	2.4	2	A	2	NE		14	Popek 1993
9S35E-10/5	Adit/tailings	2.4	2	A	2	NE		14	Popek 1993
9S35E-10/6	Mine	2.10	2	B	2	E	a,d	14	Popek 1993

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
9S35E-11/1 DA89	Blue Bird Mine	2.10	2	A	0	E	a,d	14	Fulgham 1989
9S35E-11/2 DA90	Mine	2.0	2	A	0	NE		13	Recorded by CRC 1978
9S35E-11/4	Adit	2.4	2	A	2	NE		14	Popek 1993
9S35E-13/1	Southwest Thirteen Site	1.7	3	B	2-3	E	a,d	13	White 1987
9S35E-14/1 DA92	Mine	2.0	2	A	0	NE		13	Recorded by CRC 1978
9S35E-14/2 DA91	Blackjack mine	2.4	2	A	3-4	NE		14	Fulgham 1990
9S35E-14/3	Southeast Fourteen site	1.8	3	A	3	E	a,d	13	White 1987
9S35E-15/1 DA93	Blue Mountain mines	2.10	2	A	2-3	NE		13	Recorded by CRC 1978
9S35E-15/2 DA94	2 Mines	2.4	2	A	2-3	NE		13	Recorded by CRC 1978

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
9S35E-15/5	5 adits & 2mine shafts	2.10	2	A	2-3	NE		14	Fulgham 1990
9S35E-16/1 DA95	Ruby Bend	2.1	2	A	2-3	E	a,d	13	Recorded by CRC 1978; White 1987-U
9S35E-21/1 DA96	5 Mines	2.0	2	A	0	NE		13	Recorded by CRC 1978
9S35E-21/2	Ruby Dugout	2.10	2	B	3	E	a,c,d	13	White 1987
9S35E-21/3	Trash dump	1.6	1	A	2	E	a,d	14	Popek 1993
9S35E-21/4	Ditch	1.9	1	A	4	NE		14	Popek 1993
9S35E-21/5	Phone insulator (Butcher Boy Mine)	2.9	2	A	4	NE		14	Popek 1993
9S35E-22/1 DA99	Ruby Creek cabins	1.7 2.1	2/3	B	0 2-3U	E	a,d	13	Recorded by CRC 1978; White 1987-U
9S35E-22/2	Ruby Creek Confluence Site	2.10	2	B	3	E	a,c,d	13	White 1987

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
9S35E-22/3 DA97	Clear Creek strip mine	2.0 1.1	2	A B-U	0 3-U	E	a,c,d	13	Recorded by CRC 1978; White 1987-U
9S35E-22/4 DA98	Mines	2.10	2	A	0	NE		13	Recorded by CRC 1978
9S35E-22/5	Frame house & cellar	1.7	3	A	4-5	E	a,d	14	Fulgham 1990
9S35E-22/6	Adit mine & structure	2.10	2	A	2-3	E	a,d	14	Fulgham 1990
9S35E-22/7	3 strucutres, ditch, adit, tailings & trash	2.10	2	A	2	E	a,d	14	Popek 1993
9S35E-23/1	Alamo Neighbor mining site	1.8	3	A	2-3	E	a,d	13 14-U	White 1987;Popek 1993-U
9S35E-23/2	Adit mine & tailings (added to 09S35.0E2 301)	2.4	2	A	3	NE		14	Fulgham 1990; Popek 1993-U

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
9S35E-23/3	Stamp mill & habitation	2.10	2	A	2	E	a,d	14	Popek 1993
9S35E-23/4	Stamp mill & trash	2.10	2	A	2	E	a,d	14	Popek 1993
9S35E-23/6	Ditch	1.9	1	A	3	NE		14	Popek 1993
9S35E-27/1 DA106	Humpback mines	2.0	2	A	0	NE		13	Recorded by CRC 1978
9S35E-28/1DA100 (no form)	Cabin	1.7	3	A		E	a,d		
9S35E-28/2 DA101	Cabin mining settlement/ homestead	1.8 2.1	3/2	B	0 4-U	E	a,c,d	13 14-U	Recorded by CRC 1978; Popek 1993-U
9S35E-28/3 DA102	Lightning Creek placers	2.10 2.1	2	B A-U	0 3-U	E	a,d	13 14-U	Recorded by CRC 1978; Popek 1993-U
9S35E-28/4 DA103	Mine tailings	2.0 1.2	2	A	0 2-U	NE		13 14-U	Recorded by CRC 1978; Popek 1993-U
9S35E-28/5	Adit tailings	2.4	2	A	2	NE		14	Popek 1993
9S35E-28/6	Placer mine	2.1	2	A	3	NE		14	Popek 1993

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
9S35E-28/7	Trash scatter	1.13	1	A	2	E	a,d	14	Popek 1993
9S35E-28/8	Ditch	1.9	1	A	3	NE		14, 17	Popek 1993
9S35E-31/1 L48A	Placer ditch	1.9	1	A	0 5-U	NE		16 18, 17-U	Recorded by CRC 1978; Popek 1993-U
9S35E-31/2 L48B	Plaer ditch	1.9	1	A	0	NE		16	Recorded by CRC 1978
9S35E-33/1 DA105	Mine shaft	2.3	2	A	0	NE		16	Recorded by CRC 1978
9S35E-33/3 DA108	Prospect	1.1	1	A	0	NE		16	Recorded by CRC 1978
9S35E-33/4	Burnetta Bice-Murphy Cabin	1.7	3	B	3	E	a,b,c,d	16	Anonymous 1986
9S35E-33/5	Baum Cabin complex	1.7	3	B	2-3	E	a,d	16	Anonymous 1986

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
9S35E-33/7	Mining settlement/ mining complex/ mill	1.8	3	A	2	E	a,d	17	Popek 1993
9S35E-33/9	Ditch	1.9	1	A	3	NE		17, 14	Popek 1993
9S35.5E-3/1 L49	Dredge tailings	1.2	1	A	0	NE		13, 19	Recorded by CRC 1978
9S35.5E-4/2	Tailings	1.2	1	A	0	NE		14	Popek 1993
9S35.5E-4/3	Structure/ trash scatter	1.7	3	B	2	E	a,d,	14	Popek 1993
9S35.5E-4/5	Ditch	1.9	1	A	2	NE		14	Popek 1993
9S35.5E-4/6	Ditch	1.9	1	A	2	NE		14	Popek 1993
9S35.5E-4/7	Chinese trash scatter & feature	1.8	3	A	3	E	a,d	14	Popek 1993
9S35.5E-4/9	Chinese trash scatter features	1.8	3	A	3	E	a,d	14	Popek 1993

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
9S35.5E-4/10	Ditch	1.9	1	A	2	NE		14	Popek 1993
10S34E-1/1 DA109	Morris mine	2.10	2	B	0	E	a,c,d	16	Recorded by CRC 1978
10S34E-2/2 DA110	Tiger mine	2.7	3	A	0	E	a	16	Recorded by CRC 1978
10S34E-3/2 DA112	Mine	2.0	2	A	0	E	a	16	Recorded by CRC 1978
10S34E-3/3 DA113	Mine	2.0	2	A	0	NE		16	Recorded by CRC 1978
10S34E-4/1 DA114	Mine shaft	2.2	2	A	0	E	a	16	Recorded by CRC 1978
10S34E-4/2 DA115	Cabin & ditch	1.8	3	B	0	E	a,c,d	16	Recorded by CRC 1978
10S34E-22/1	Lemmon/ Lemon cabins	1.7	3	B	0	E	a,c,d		Noted by Joan M. Turner in letter to Richard M. Lemmon and in response 1979
10S35E-3/1	Stamp mill etc.	2.10	2	B	4	E	a,c,d	17	Popek 1993

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
10S35E-3/2	Mining settlement/ homestead	1.13	1	A	2	E	a,d	17	Popek 1993
10S35E-4/1	Ditch	1.9	1	A	4	NE		17, 14	Popek 1993
10S35E-4/2	Mining settlement/ homestead	1.7	3	A	2	E	a,d	17	Popek 1993
10S35E-4/3	Structures/ trash	1.7	3	A	2-3	E	a,d	17	Popek 1993
10S35E-7/1 DA118	Bi-Metallic mine	2.0	2	A	0	NE		16	Recorded by CRC 1978
10S35E-7/2 DA119	Mine & 5 cabins	2.13	2	B	0	E	a,c,d	16	Recorded by CRC 1978
10S35E-8/1 DA120	Prospect	1.1	1	A	0	E	a	16	Recorded by CRC 1978
10S35E-9/1 DA121	Hidden Treasure quartz mine	2.0	2	A	0	NE		17	Recorded by CRC 1978
10S35E-9/2 DA122	Colin Pierce mine claim	1.0	1	A	0	NE		17	Recorded by CRC 1978

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
10S35E-9/3 DA123	Carpenter Group mine claim	1.0	1	A	0	NE		16	Recorded by CRC 1978
10S35E-9/4 DA124	Worley Consoli-dated mining claim	2.0	2	A	0	NE		16	Recorded by CRC 1978
Malheur National Forest - Long Creek Ranger District									
H645-0052	Prospect, shaft & ditches	2.3	2	A	2	NE		20	Recorded by Glover 1980; Bourdeau 1992a-U; Sherburne 1993-U

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
H645-0066 H645-1434	Cabins, ditch & placer tailings	1.8	3	B	0 3-U	E	a,c,d	4-U 21-U	Glover 1981a; Recorded by C. Cambre, K. Datson, A. Schneider 1992-U; Sherburne 1993-U
H645-0068	Adits & structures	1.7 2.1	3/2	B	0 3-U 2-3U	E	a,d	20-U	Glover 1981a; Bourdeau 1992a-U; Sherburne 1993-U
H645-0070	Other exploratory; other develop-ment mining/ habitation	1.13 2.10	2/1	B	0 3-U 4-U	E	a,c,d	20-U	Glover 1981a; Bourdeau 1992a-U; Sherburne 1993-U
H645-0077	Ditch	1.9	1	A	4 3-U	NE		20, 16	Bourdeau 1992a; Sherburne 1993-U

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
H645-0079	Building platform/ structure with assoc. trash	1.7	3	A	0 2-U 2-3U	E	a,d	20	Recorded by L. Whittier 1991; Bourdeau 1992a-U; Sherburne 1993-U
H645-0080	Prospects & Cabins	1.8	3	B A-U	3 2-U	E	a,d	20	Glover 1981b; Bourdeau 1992a-U; Sherburne 1993-U
H645-0083	Adit & prospect	2.4	2	A	3 2-U	NE		20	Glover 1981b; Bourdeau 1992a-U; Sherburne 1993-U
H645-0085	Shaft/ prospect	2.4	2	A	3 2-3U	NE		20	Glover 1981b; Bourdeau 1992a-U; Sherburne 1993-U

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
H645-0090	Placer mine site	2.10	2	B	3-4 2-U 4U	E	a,c,d	20	Glover 1981b; Blalack and Thomas 1990; Bourdeau 1992a-U; Sherburne 1993-U
H645-0092	Susanville Mining District	2.10	2	A		E	a,b,c,d		Glover 1981b; Blalack and Thomas 1990
H645-0093	Prospects	1.1	1	A	4 0-U	NE		20 22-U	Glover 1981b; Blalack and Thomas 1990; Sherburne 1993-U
H645-0095	Treasure Hills placer claim	1.8	3	A	2-3 3U	E	a,d	20	Glover 1981b; Blalack and Thomas 1990; Sherburne 1993-U

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
H645-0821	Blue Devil mine & cabin	1.8	3	B	3 4-U	E	a,d	20	Blalack and Thomas 1990; Bourdeau 1992a-U; Sherburne 1993-U
H645-0920	Misnomer mine	2.3	2	A	3 2-U	E	a,d	20	Blalack and Thomas 1990; Bourdeau 1992a-U; Sherburne 1993-U
H645-0925 H645-0924 H645-0923 H645-0922 H645-0053 L45	Ditch (includes 0924, 0923, 0922, 0053)	1.9	1	A	3 4-U	E	a	20 Updte 20, 4, 15	Blalack and Thomas 1990; Sherburne 1993-U
H645-1204	Elk City mine (Elk City Spring House)	2.10	2	B	3	E	a,c,d	20	Sherburne 1991a; Sherburne 1993-U

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
H645-1208 LC32	Mackie Cabin/ Denny Cabin	2.10	B	B	4 3-U	E	a,c,d	20 22-U	Recorded by CRC 1978; Sherburne 1991b; Sherburne 1993-U
H645-1209	Lost adit	2.4	2	A	4 3-U	NE		20	Bourdeau 1992a; Sherburne 1993
H645-1210	Trash dump	1.6	1	A	2 4-U	E	a,d	20	Bourdeau 1992a; Sherburne 1993-U
H645-1211	Quill Get'er adit	2.4	2	A	3	NE		20	Sherburne 1993
H645-1212	Shaft & cabin	2.10	2	A	2 3-U	E	a,b,c,d	20	Bourdeau 1992a; Sherburne 1993-U
H645-1217	Hamlet's Ditch	1.9	1	A	3 4-U	NE		20	Bourdeau 1992a; Sherburne 1993-U

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
H645-1221	Possible mining claim	1.7	3	A	3	E	a	20	Sherburne 1993
AH645-1222	Lithic scatter, mine & structures	2.10	2	B	4	E	a,c,d	20	Bourdeau 1992a; Sherburne 1993
H645-1291 or 1292	Domicile associated with mining	1.7	3	B	4 3-U	E	a,c,d	20	Bourdeau 1992a; Sherburne 1993
H645-1442	Armstrong Nugget site	2.1	2	A	3	E	a,d,	20	Boureau 1992; Sherburne 1993-U
H645-1443 LC17	Wild Man site	2.4 2.1	2	A	0 2-U	E	a,d	20	Recorded by CRC 1978; Bourdeau 1992a-U; Sherburne 1993-U
H645-1445	Placer mining site	2.1	2	A	3	E	a,d	20	Bourdeau 1992a

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
H645-1479	Gem of a dump	1.8	3	A	4 3-U	E	a,d	20	Bourdeau 1992a; Sherburne 1993-U
H645-1481	Compton/ Rescue mine	2.3	2	A	2 3-U	NE		20	Bourdeau 1992a; Sherburne 1993-U
H645-1482	Idaho Mine	2.4	2	A	2 3-U	NE		20	Bourdeau 1992a; Sherburne 1993-U
H645-1483	Gem Mine manager's cabine	1.7	3	B	3 4-U	E	a,c,d	20	Bourdeau 1992a; Sherburne 1993-U
H645-1484	Mining camp	1.7	3	A	2 3-U	E	a,d	20	Bourdeau 1992a; Sherburne 1993-U
H645-1485	Gem dump south trash dump	1.6	1	A	3 4-U	E	a,d	20	Bourdeau 1992a; Sherburne 1993-U

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
H645-1486	Ditch	1.9	1	A	4	NE		22	Sherburne 1993
H645-1487	Miner's cabin	1.7	3	A	2 3-U	E	a,d	20	Bourdeau 1992a; Sherburne 1993-U
H645-1488	Tidy Floor adit	2.4	2	A	3 4-U	NE		20	Bourdeau 1992a; Sherburne 1993
H645-1489	Adits & structure	2.13	2	A	2	E	a,d	20	Bourdeau 1992a
H645-1490	Adit 3	2.4	2	A	2-3	NE		20	Bourdeau 1992a
H645-1491	Adit 4	2.4	2	A	3	NE		20	Bourdeau 1992a
H645-1492	Adit 5	2.4	2	A	3	NE		20	Bourdeau 1992a
H645-1498	Gem Quartz mill	2.5	2	A	2	E	a,d	20	Bourdeau 1992a
H645-1499	Strange Fellow mines	2.4	2	A	2	NE		20	Bourdeau 1992a

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
H645-1513	Elk City ditch	1.9	1	A	4	NE		23, 22	Sherburne 1993
H645-1514	Princess Trail (mining)	2.7	3	A	3	E	a	22, 23	Sherburne 1993
IH645-1215	Tin Can	1.12	1	A	0	NE		20	Bourdeau 1992a
IH645-1219	Shovel head	1.12	1	A	0	NE		16	Bourdeau 1992a
IH645-1279	Boiler	1.12	1	A	0	NE		20	Bourdeau 1992a
IH645-1444	Hand-forged rachet	1.12	1	A	0	NE		20	Bourdeau 1992a
H645-0305	Hydraulic mining/ cabins	2.10	2	A B-U	2-3 3-U	E	a,c,d	16 18-U	Pfeiffer and Fortini 1984; Baldwin 1993a-U
H645-0308	Other exploratory site	1.13	1	A	0	E	a,d	16	Pfeiffer and Fortini 1984

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
H645-0314	Steam Donkey sled site	2.10	2	A	0 2-U	E	a,d	16	Pfeiffer and Fortini 1984; Baldwin 1993a-U
H645-0375	Red Mining cabin	2.10	2	B	3	E	a,c,d	16 18-U	Pfeiffer and Fortini 1984; Baldwin 1993a-U
H645-0377	Forgotten Mine	2.10	2	A	2-3 2-U	E	a,d	16 24-U	Pfeiffer and Fortini 1984; Baldwin 1993a-U
H645-0866	Lady Placer group logging camp & rail spur	2.7	3	A	2	E	a,d	16 18-U	Prouty 1990a; Baldwin 1993a-U
H645-0878	Ditch	1.9	1	A	2 3-U	NE		16 18-U	Prouty 1990a; Baldwin 1993a-U
H645-0879	Phone line insulators	2.9	3	A	2 4-5U	NE		16 18-U	Prouty 1990a; Baldwin 1993a-U

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
H645-1065	Trash dump	1.6	1	A	5	E	a,d	24	Baldwin 1993a
AH645-1328 or AH645-1328	Homestead/ mining	1.13	1	A	2	E	a,d	18	Baldwin 1993a
H645-1333	Tailings	1.2	1	A	3	NE		24	Baldwin 1993a
H645-1334	Cabin/ placer mining	1.8	3	A	2	E	a,d	24	Baldwin 1993a
H645-1342	Mining/ cabin	1.13	1	A	2	E	a,d	16	Baldwin 1993a
H645-1343	Collapsed cabins/ mining	2.10	2	A	3	E	a,d	18	Baldwin 1993a
H645-1345	Sluice box	2.10	2	A	3	E	a,d	16	Baldwin 1993a
H645-1348	Cabin/shaft	2.10	2	A	2	E	a,d	18	Baldwin 1993a
H645-1451	Structure/ placer mining	1.13	1	B	2	E	a,d	16	Baldwin 1993a

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
H645-1455	Log cabin/ adit	2.10	2	A	2	E	a,d	18	Baldwin 1993a
H645-1459	Mining cabin (part of H645-1327)	1.8	3	A	2	E	a,d	16	Baldwin 1993a
H645-1461	Ore Bucket mine sign & prospects	1.1	1	A	2	E	a	18	Baldwin 1993a
H645-1506	Trash scatter	1.6	1	A	2	E	a,d	18	Baldwin 1993a
H645-1509	Ditch	1.9	1	A	4	NE		16	Baldwin 1993a
H645-1510	Ditch	1.9	1	A	4	NE		16	Baldwin 1993a
H645-1511	Ditch	1.9	1	A	4	NE		16	Baldwin 1993a
H645-1576	Prospect pit/ structural remains	1.8	3	A	2	E	a,d	24	Baldwin 1993a
H645-1578 LC81	Homestead/ adit	2.10	2	A	2	E	a,d	24	Baldwin 1993a

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
H645-1330 LC119	Ditches & structural remains	1.7	3	B A-U	0 3-U	E	a,d	16 24-U	Recorded by CRC 1978; Baldwin 1994-U
H645-1331	Strucutre & placer mining	2.10	2	A	3	E	a,d	16	Baldwin 1994
H645-1539	Lithics & ditch	1.13	1	A	5	E	a,d	23	Baldwin 1994
H645-1586	Lithics & historic concen.	1.13	1	A	3	E	a,d	18	Baldwin 1994
H645-1591	Ditch & tialings	1.13	1	A	4	NE		18	Baldwin 1994
H645-0004 GB4	Cabin & shaft/adit	2.10	2	B	3	E	a,c,d	16	GLover 1979a
H645-0005 GB5	Cabins	1.7 2.1	3/2	B	3	E	a,c,d	16	Glover 1979a; Bourdeau 1991a-U
H645-0006 GB6 LC68	Haystacker & mining ditches	1.9	1	A	0	NE		16	Recorded by CRC 1978; Glover 1979a-U

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
H645-0007 GB7 LC43	Building platform w/ assoc trash scatter	1.7	3	B	0 2-U2	E	a,d	16	Recorded by CRC 1978; Glover 1979a-U; Bourdeau 1991a-U
H645-0008 GB8 LC48	Mine	2.10	2	A	0	E	a,d	16	Recorded by CRC 1978; Glover 1979a-U
H645-0009 GB9 LC59	Mine	2.10	2	B	0 4-U	E	a,c,d	16	Recorded by CRC 1978; Glover 1979a-U; Bourdeau 1991a-U
H645-0010 GB10 LC67 LC65	Cabin & quartz mining; cabin & ditch-U	2.10 1.1	2/1	B	0	E	a,c,d	16	Recorded by CRC 1978; Glover 1979a-U; Bourdeau 1991b-U
H645-0019 LC12 LM1	Homestead assoc. w/ placer mining	1.7 1.1	3	B	0 4-U	E	a,c,d	4	Recorded by CRC 1978; Glover 1979b-U; Bourdeau 1992b-U

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
AH645-0020 LC11 LM2	Cabin, placer & prehistoric artifacts	1.7 1.8 1.1	3	B A-U	0	E	a,d	4	Recorded by CRC 1978; Glover 1979b; Re-recorded by Glover 1980; Baldwin 1993b-U
H645-0031	Ditch, reservoir & diversion channel	1.9	1	A	2 4-U	E	a	25	Glover 1980a; Blalack 1990
H645-0032	Blackwell Cohoe mining ditch	1.9	1	A	2	NE		25	Glover 1980a
H645-0046	Cabin remnants & ditches	1.8	3	A	2-3	E	a,d	16	Glover 1980b
H645-0047	Mining/ logging camp	1.8	3	A	2-3 3-4U	E	a,d	16 24-U	Glover 1980b; Steggell 1986-U
H645-0052	Mining shafts	1.7	3	A		NE			

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
H645-0064	Cabin (possible connection w/ Dixie Meadows Mine)	1.7	3	A	2-3	E	a,d	16	Glover 1981a
H645-0065	Cabin (possible connection w/ Dixie Meadows Mine)	1.7	3	B	2-3	E	a,d	16	Glover 1981a
H645-0067	Structures & shaft	2.10	2	B	4	E	a,c,d	16	Glover 1981a
H645-0068	Cabin & adit	1.13	1	B		E	a,c,d		
H645-0069 LC12	Cabin (private land)	1.7	3	B	3-4	E	a,c,d	4	Glover 1981a
H645-0078 LC45	Homestead with presumed mining ditches	1.8	3	A	0 2-3	E	a,d	20	Recorded by CRC 1978; Re-recorded by M. Glover 1981

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
H645-0082	Collapsed adit	2.4	2	A	2-3	NE		20	Recorded by M. Glover 1981
H645-0087	Placer & hard rock mining	2.10	2	B	3 2-U	E	a,d	26 16-U	Glover 1981a; Goodman 1988-U; Bourdeau 1993-U
H645-0166	Placer mining	2.1	2	A	3	NE		16	Cox 1982; Prouty 1990b-U
H645-0169	Mine & cabin	2.10	2	B	3	E	a,c,d	16	Cox 1982; Prouty 1990b-U
H645-0170	Cabin & rock ring	1.7	3	A	2-3	E	a,d	16	Cox 1982
H645-0171	Mining	2.4	2	A	2-3	NE		16	Cox 1982
H645-0175	Cabin & mining	1.7	3	A	2	E	a,d	16	Cox 1982
H645-0187	Cabin & mining	2.10	2	B	4	E	a,c,d	20	Abusaidi 1983; Blalack 1990-U

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
H645-0208A LC129	Cabins & sluice box	1.7 1.8	3	B	0 3-U	E	a,c,d	25	Recorded by CRC 1978; Pfeiffer and Fortini 1984-U
H645-0208B LC128	Black Butte mine	2.0 2.4	2	A	0 2-U	NE		25	Recorded by CRC 1978; Pfieffer and Fortini 1984-U
H645-0211	Adit/ prospect pit	2.4	2	A		NE			
H645-0223	Placer & log cabin	2.10	2	A	2-3	E	a,d	16	Steggell 1984
H645-0248 LC127	Mining operations (Chinese)	1.9	1	A	4	E	a,d	27	Recorded by CRC 1978; Pfeiffer and Fortini 1984-U
IH645-0258	Cairn/post (possible mining)	1.10	1	A		E	a		
H645-0310	Refining & processing operations	2.10	2	A	2-3	E	a,d	16	Pfeiffer and Fortini 1984

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
H645-0311	Cabin (associated with mining)	1.7	3	B	2-3	E	a,d	16	Pfeiffer and Fortini 1984
H645-0312	Mine, structure remains & trash scatter	1.12	1	A	2-3	E	a,d	16	Pfeiffer and Fortini 1984
H645-0315	Shafts & structure	2.3	2	A	3	E	a,d	16	Pfeiffer and Fortini 1984
H645-0316	Open pit mine	1.1	1	A	3	NE		16	Pfeiffer and Fortini 1984
IH645-0319	Placer mining equipment	1.11	1	A	0	E	a	16	Pfeiffer and Fortini 1984
H645-0322	Chinese mining/ habitation	1.13	1	A	2-3	E	a,d	16	Pfeiffer and Fortini 1984
H645-0328	Chinese trash scatter	1.6	1	A		E	a,d		
IH645-0335	Hydraulic piping	1.11	1	A	2-3	NE		16	Pfeiffer and Fortini 1984

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
H645-0337	Sledge hammer	1.12	1	A		NE			
H645-0339	Fir mine	2.4	2	A	5	NE		16	Pfeiffer and Fortini 1984
H645-0351	Woodcutter cabin (Dixie Meadows mine)	1.7	3	A	2-3	E	a,d	16	Pfeiffer and Fortini 1984; Wood 1994-U
H645-0352	Vertical tunnel	2.3	2	A	5	NE		16	Pfeiffer and Fortini 1984
H645-0355	Mining habitation	2.10	2	B	4	E	a,c,d	16	Pfeiffer and Fortini 1984
H645-0356	Kight mining tunnels	2.10	2	A	2-3	E	a,d	16	Pfeiffer and Fortini 1984
H645-0358	Mine with associated can scatter	1.13	1	A	2-3	E	a,d	16	Pfeiffer and Fortini 1984
H645-0359	Fireplace with assoc. trash scatter	1.7	3	A		E	a,d		

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
H645-0364	Blue Flag mine	2.10	2	A		NE			
H645-0366	Rat hole mine	2.3	2	A	4	NE		16	Pfeiffer and Fortini 1984
H645-0373	Hydraulic mining & habitation	2.10	2	A	2-3	E	a,d	16	Bigelow 1985a
H645-0414	Cabin & mine	1.8	3	B	2-3	E	a,d	16	Bigelow 1985a
H645-0419	Shaft	2.3	2	A	3	NE		16	Bigelow 1985b
IH645-0420	Square box frame & claim tag	1.11	1	A	3	NE		16	Bigelow 1985b
H645-0421	Structural remains & mining	1.3	1	A	2	E	a,d	16	Bigelow 1985b
H645-0464 LC14	Cabin remains & placer tailings	2.10	2	A	2-3	E	a,d	4	Bigelow 1986
H645-0466	Ditch	1.9	1	A	2-3	NE		4	Bigelow 1986

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
H645-0477	Ditch w/ prehistoric artifacts	1.13	1	A		E	a,d		
H645-0511	Railroad Bed	2.7	3	A		E	a		
H645-0820	Mining homestead w/ arrastra	1.8	3	A	2	E	a,d	20	Blalack and Thomas 1990
IH645-0887 or H645-0887	Prospect	1.1	1	A	0	NE		20	Blalack and Thomas 1990
H645-0940	Mining area-ditches	1.9	1	A	3	NE		16	Bourdeau 1991a
H645-0948	Tailings & ditch	1.13	1	A	3	E	a,d	16	Bourdeau 1991a
H645-0951	Statler Mining Complex (Mayflower, Heppner or Statler)	2.10	2	B	3-4	E	a,c,d	16	Bourdeau 1991a

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
H645-0957	Wray Mine	2.10	2	A	3	E	a,d	16	Bourdeau 1991a
IH645-0966	Possible ore car axle	1.11	1	A	0	NE		16	Bourdeau 1991a
H645-0968	Possible habitation remains & ditch	1.8	3	A	3	E	a,d	16	Bourdeau 1991a
AH645-0997	Possible mining or RR logging irrigation/ RR grade & lithics	1.13	1/3	A	5	E	a,d	20	Blalack 1990b
H645-1008	Placer mining	1.13	1	A	4-5	E	a,d	20	Blalack 1990b
H645-1133	Timms tailings (dredge mining)	2.1	2	A	2-3	NE		20	Bourdeau 1991
H645-1390	Fenced mine site	2.10	2	A	2	NE		16	Bourdeau 1993

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria	USGS Map	Reference
H645-1392	Adit 6 A(Crushed cabin site)	1.7	3	A	2	E	a,d	16	Bourdeau 1993
H645-1507	Big Creek Ditch	1.9	1	A	4	NE		4	Baldwin 1993b
IH645-1553	Artifacts - Chinese (AH645-0020)	1.12	1	A	0	E	a,d	4	Baldwin 1993b
H645-1558	Lost Ditch site	2.10	2	B	4	E	a,c,d	23	Bourdeau 1993

Umatilla National Forest Sites Lacking Clear Associations to Mining Activity.
Note: Because of the low levels of physical and interpretable integrity, these sites are not considered eligible for inclusion in the National Register of Historic Places as mining related sites.

Agency Site #	Description	Site Type	Arch/Bldg.	Comments
5S33E-15/1	Trash Dump	1.6	A	Associated with mining?
6S32E-27/1	Texas Bar			Similar to Dixon Bar?
6S32E-28/2	Tent Saloon	1.5	A?	Associated with mining?
7S31E-17/1	Cabin	1.7		Associated with mining?
7S31E-17/6	2 room Log Cabin Remains	1.8?	A	Associated with mining?
7S32E-28/2	Mote Cabin	1.7		Associated with mining?
7S33E-6/3	Can Dump	1.6	A	Associated with mining?
7S33E-9/1	House	1.7	B??	Associated with mining?
7S34E-20/1	Ryder Creek Site	?		Associated with mining?
7S34E-34/1	Judge Burrow's cabin	1.7	B?	Associated with mining?

Agency Site #	Description	Site Type	Arch/Bldg.	Comments
7S35E-11/01	Cabin	1.7	B?	Associated with mining?
7S35E-23/2 DA19	Cabin	1.7	B?	Associated with mining?
7S35E-33/1	Cassidy Camp Site	?		Associated with mining?
7S35.5E-34/2 DA24	4 Structures	1.7	B?	Associated with mining?
7S35.5E-34/3 DA25	Structure/cabin	1.7	B?	Associated with mining?
8S32E4/1 DA32	2 Cabins	1.7	B?	Associated with mining?
8S32E-28/1 DA36	Cabin	1.7	B?	Associated with mining?
8S33E-17/1 DA44	Structure	1.7	B?	Associated with mining? May be occupied.
8S33E-18/1 DA45	Cabin	1.7	B?	Associated with mining? Currently occupied.
8S33E-18/2 DA46	Kenny Cabin & mine	1.13?	?	Paperwork was missing.

Agency Site #	Description	Site Type	Arch/Bldg.	Comments
8S35E-10/3 DA56	Wagner Gulch Cabin	1.7	B?	Associated with mining?
8S35E-16/3	Stone Cache Site	??		Associated with mining?
8S35.5E-3/1 DA 60	West Cabin	1.7	B?	Associated with mining?
9S34E-35/2 DA83	House	1.7	B?	Associated with mining?
9S34-E-36/1 DA84	Structure	1.7	B	Associated with mining?
9S35.5E-4/8	Trash scatter	1.6	A	Associated with mining?
9S35E-5/2	Cabin remains	1.8	A?	Associated with mining?
9S35E-9/6	Log cabin	1.7	B?	Associated with mining?
9S35E-10/1	Log cabin, collapsed	1.8	A?	Associated with mining?
9S35E-11/3	Cabins	1.7	B?	Associated with mining?
9S35E-30/1 DA104	Cabin at Ben Camp	1.7	B?	Associated with mining?

Agency Site #	Description	Site Type	Arch/Bldg.	Comments
9S35E-33/2 DA107	Cabin	1.7	B?	Associated with mining?
10S35E-5/1 DA116	Cabin	1.7	B?	Associated with mining?
10S35E-6/1 DA 117	Morris Cabin	1.7	B?	Associated with Morris Mine?
10S35E-9/6 DA126	Hiatt's House	1.7	B?	Associated with mining?

Key for Table 2

Column 1- Agency Site Number - from Site Forms

Column 2 - Description - from Site Forms

Column 3 - Site Type - from Site Forms

1.0 Mine Exploration Sites

- 1.1 Prospects
- 1.2 Waste rock dumps/tailings
- 1.3 Trenches
- 1.4 Bulldozer cuts
- 1.6 Trash dump
- 1.9 Ditch
- 1.10 Claim post/sign
- 1.11 Mining debris
- 1.12 Isolate associated with mining exploration sites
- 1.13 Other exploratory sites (includes several of the above)

2.0 Mine Development Sites

- 2.1 Placer mines
- 2.2 Deep industrial mines
- 2.3 Rat-hole underground mines
- 2.4 Surface mines (adits, pits)
- 2.5 Mill sites
- 2.8 Water engineering sites
- 2.10 Other development sites (includes several of the above)

3.0 Other Site Types

- 1.5 Tent platform/pad (with trash)
- 1.7 Building platform/structure (with trash)
- 1.8 Habitation site with remains of mining debris or feature
- 2.6 Domestic household sites
- 2.7 Transportation sites
- 2.9 Services sites

Column 4 - Property Type - from Site Form Descriptions and Property Types in Management Plan Document

- 1.0 Mine Exploration
- 2.0 Mine Development (Beneficiation)
- 3.0 Other

Column 5 - from Site Forms

Arch = Archaeological site or feature
Bldg = Building or architectural site or feature

Column 6 - Condition of Site (integrity); from Site Forms

0 Unknown (no information provided)
1 Excellent
2 Good
3 Fair
4 Poor
5 Extremely Poor

Column 7 - from Site Forms

National Register Eligible = E

Not Eligible for Nomination to the National Register = NE

Column 8 - from Site Forms

Criteria (if eligible) = a, b, c, d

Table 2 - National Register of Historic Places Eligible Sites

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria
Umatilla National Forest - North Fork John Day Ranger District							
6S32E-35/1	Five Cabins	1.8	3	B	2	E	a,d
7S32E-1/2	Cabin	1.8	3	B	4	E	a,c,d
7S33E-6/2 UK44	Cabin & Prospect	1.8	3	B	0	E	a,c,d
7S33E-6/3	Habitation site w/mining feature	1.8	3	B	2	E	a,d
7S33E-8/1 DA13	Cabin	1.8	3	B	3	E	a,c,d
7S33E-9/2 UK46	Dredge Camp	1.8	3	B	4	E	a,c,d
7S33E-9/3	Mining claim sign	1.10	1	A	4	E	a
7S33E-9/3	Habitation site with mining feature	1.8	3	A	3	E	a,d
7S33E-10/1 UK47	Miner's cabin	1.8	3	A	3	E	a,d

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria
7S33E-10/2 UK48	Walt Allison's Mining Claim	1.0	1	A	0	E	a,d
7S34E-13/1 DA17	Miner's cabin	1.7	3	B	0	E	a,c,d
7S34E-28/2	Cougar Place Operation	2.10	2	A	e	E	c,d
7S35E-25/1 DA22	Trout Creek Cabin	1.8	3	B	5	E	a,c,d
7S35E-25/2	Upper Trout Creek Cabin	1.8	3	B	3	E	a,c,d
7S35E-25/3	East End Flume & Ditch	1.9	1	A	3	E	c
7S35E-36/1	Pippin Cabin	1.8	3	B	3	E	a,c,d
7S35E-36/4	Wagon Site	1.13	1	A	2	E	a,b,c,d
7S35.5E-27/1	Chinese mining & habitation	1.13	1	A	3	E	a,d
7S35.5E-34/7	Historic cabin & other features	1.13	1	A	3	E	a,d
8S33E-7/2	Historic trail	2.7	3	A	3	E	a
8S33E-7/3	Mining activity-other exploratory site	1.13	1	A	0	E	a,d

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria
8S33E-7/4	Corner marker-claim post/sitn	1.10	1	A	3	E	a
8S33E-9/1 DA40	Cabin	1.7	3	B	3	E	a,c,d
8S33E-9/2 DA41	Welch Creek mine & cabin	2.10	2	A	2	E	a,d
8S33E-18/3	Tipple mining structure	2.3	2	A	3	E	a,d
8S33E-19/2	Keeney Mine	1.8	3	B	3	E	a,d
8S34E-30/1 DA50	Skinner mine & cabin	2.10	2	B	3	E	a,c,d
8S34E-34/2	Campsite	1.6	1	A	3	E	a,d
8S35E-3/1	East Thornburg adit	1.8	3	A	3	E	a,b,d
8S35E-3/3 DA53	East Side Thornburg cabin	1.7	3	B	3	E	a,b,c,d
8S35E-3/4	Thornburg Village	1.7	3	A	3	E	a,b,d
8S35E-3/5	Dragline operation	2.10	2	A	3	E	a
8S35E-3/6	Downslope cabins & dump	1.7	3	A	3	E	a,d

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria
8S35E-9/1	Miner Blackwell cabin	1.7	3	B	3	E	a,c,d
8S35E-10/4	South Thornburg operation	2.10	2	A	3	E	a,b,d
8S35E-10/5 DA55	Crane Ditch cabins	1.8	3	A	3	E	a,d
8S35E-29/1	Log cabin	1.7	3	A	3	E	a,d
8S35E-29/2	Trammel Hopper	2.0	2	A	0	E	a,d
8S35E-29/3	Cabin	1.7	3	B	4	E	a,c,d
8S34E-29/4	Miner's homestead	1.7	3	B	4	E	a,c,d
8S35E-31/01	Goldbug mine	2.4	2	A	2	E	a,d
8S35.5E-21/1	Ten Cent Creek Cabin	2.10	2	B	3	E	a,c,d
8S35.5E-22/1	Ditches & pipeline	1.13	1	A	3	E	a,d
8S35.5E-22/2 DA64, DA65	Magnolia & Ajax mines	2.10	2	B	3	E	a,c,d
8S35.5E-22/3 DA62, DA66	Independence mine	2.10	2	B	3	E	a,c,d
8S35.5E-22/4	Stamp mill & China Gulch	2.10	2	B	3	E	a,c,d

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria
9S35E-11/1 DA89	Blue Bird Mine	2.10	2	A	0	E	a,d
9S35E-13/1	Southwest Thirteen Site	1.7	3	B	2-3	E	a,d
9S35E-14/3	Southeast Fourteen site	1.8	3	A	3	E	a,d
9S35E-16/1 DA95	Ruby Bend	2.1	2	A	2-3	E	a,d
9S35E-21/2	Ruby Dugout	2.10	2	B	3	E	a,c,d
9S35E-21/3	Trash dump	1.6	1	A	2	E	a,d
9S35E-22/1 DA99	Ruby Creek cabins	1.7 2.1	2/3	B	0 2-3U	E	a,d
9S35E-22/2	Ruby Creek Confluence Site	2.10	2	B	3	E	a,c,d
9S35E-22/3 DA97	Clear Creek strip mine	2.0 1.1	2	A B-U	0 3-U	E	a,c,d
9S35E-22/5	Frame house & cellar	1.7	3	A	4-5	E	a,d
9S35E-22/6	Adit mine & structure	2.10	2	A	2-3	E	a,d
9S35E-22/7	3 strucutres, ditch, adit, tailings & trash	2.10	2	A	2	E	a,d

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria
9S35E-23/1	Alamo Neighbor mining site	1.8	3	A	2-3	E	a,d
9S35E-23/3	Stamp mill & habitation	2.10	2	A	2	E	a,d
9S35E-23/4	Stamp mill & trash	2.10	2	A	2	E	a,d
9S35E-28/1DA100 (no form)	Cabin	1.7	3	A		E	a,d
9S35E-28/2 DA101	Cabin mining settle-ment/homestead	1.8 2.1	3/2	B	0 4-U	E	a,c,d
9S35E-28/3 DA102	Lightning Creek placers	2.10 2.1	2	B A-U	0 3-U	E	a,d
9S35E-28/7	Trash scatter	1.13	1	A	2	E	a,d
9S35E-33/4	Burnetta Bice-Murphy Cabin	1.7	3	B	3	E	a,b,c,d
9S35E-33/5	Baum Cabin complex	1.7	3	B	2-3	E	a,d
9S35E-33/7	Mining settlement/mining complex/ mill	1.8	3	A	2	E	a,d
9S35.5E-4/3	Structure/ trash scatter	1.7	3	B	2	E	a,d,

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria
9S35.5E-4/7	Chinese trash scatter & feature	1.8	3	A	3	E	a,d
9S35.5E-4/9	Chinese trash scatter features	1.8	3	A	3	E	a,d
10S34E-1/1 DA109	Morris mine	2.10	2	B	0	E	a,c,d
10S34E-2/2 DA110	Tiger mine	2.7	3	A	0	E	a
10S34E-3/2 DA112	Mine	2.0	2	A	0	E	a
10S34E-4/1 DA114	Mine shaft	2.2	2	A	0	E	a
10S34E-4/2 DA115	Cabin & ditch	1.8	3	B	0	E	a,c,d
10S34E-22/1	Lemmon/ Lemon cabins	1.7	3	B	0	E	a,c,d
10S35E-3/1	Stamp mill etc.	2.10	2	B	4	E	a,c,d
10S35E-3/2	Mining settle-ment/homestead	1.13	1	A	2	E	a,d
10S35E-4/2	Mining settlement/ homestead	1.7	3	A	2	E	a,d

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria
10S35E-4/3	Structures/ trash	1.7	3	A	2-3	E	a,d
10S35E-7/2 DA119	Mine & 5 cabins	2.13	2	B	0	E	a,c,d
10S35E-8/1 DA120	Prospect	1.1	1	A	0	E	a
Malheur National Forest - Long Creek Ranger District							
H645-0066 H645-1434	Cabins, ditch & placer tailings	1.8	3	B	0 3-U	E	a,c,d
H645-0068	Adits & structures	1.7 2.1	3/2	B	0 3-U 2-3U	E	a,d
H645-0070	Other exploratory; other develop-ment mining/ habitation	1.13 2.10	2/1	B	0 3-U 4-U	E	a,c,d
H645-0079	Building platform/ structure with assoc. trash	1.7	3	A	0 2-U 2-3U	E	a,d

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria
H645-0080	Prospects & Cabins	1.8	3	B A-U	3 2-U	E	a,d
H645-0090	Placer mine site	2.10	2	B	3-4 2-U 4U	E	a,c,d
H645-0092	Susanville Mining District	2.10	2	A		E	a,b,c,d
H645-0095	Treasure Hills placer claim	1.8	3	A	2-3 3U	E	a,d
H645-0821	Blue Devil mine & cabin	1.8	3	B	3 4-U	E	a,d
H645-0920	Misnomer mine	2.3	2	A	3 2-U	E	a,d
H645-0925 H645-0924 H645-0923 H645-0922 H645-0053 L45	Ditch (includes 0924, 0923, 0922, 0053)	1.9	1	A	3 4-U	E	a
H645-1204	Elk City mine (Elk City Spring House)	2.10	2	B	3	E	a,c,d

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria
H645-1208 LC32	Mackie Cabin/ Denny Cabin	2.10	B	B	4 3-U	E	a,c,d
H645-1210	Trash dump	1.6	1	A	2 4-U	E	a,d
H645-1212	Shaft & cabin	2.10	2	A	2 3-U	E	a,b,c,d
H645-1221	Possible mining claim	1.7	3	A	3	E	a
AH645-1222	Lithic scatter, mine & structures	2.10	2	B	4	E	a,c,d
H645-1291 or 1292	Domicile associated with mining	1.7	3	B	4 3-U	E	a,c,d
H645-1442	Armstrong Nugget site	2.1	2	A	3	E	a,d,
H645-1443 LC17	Wild Man site	2.4 2.1	2	A	0 2-U	E	a,d
H645-1445	Placer mining site	2.1	2	A	3	E	a,d
H645-1479	Gem of a dump	1.8	3	A	4 3-U	E	a,d

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria
H645-1483	Gem Mine manager's cabine	1.7	3	B	3 4-U	E	a,c,d
H645-1484	Mining camp	1.7	3	A	2 3-U	E	a,d
H645-1485	Gem dump south trash dump	1.6	1	A	3 4-U	E	a,d
H645-1487	Miner's cabin	1.7	3	A	2 3-U	E	a,d
H645-1489	Adits & structure	2.13	2	A	2	E	a,d
H645-1498	Gem Quartz mill	2.5	2	A	2	E	a,d
H645-1514	Princess Trail (mining)	2.7	3	A	3	E	a
H645-0305	Hydraulic mining/ cabins	2.10	2	A B-U	2-3 3-U	E	a,c,d
H645-0308	Other exploratory site	1.13	1	A	0	E	a,d
H645-0314	Steam Donkey sled site	2.10	2	A	0 2-U	E	a,d
H645-0375	Red Mining cabin	2.10	2	B	3	E	a,c,d
H645-0377	Forgotten Mine	2.10	2	A	2-3 2-U	E	a,d

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria
H645-0866	Lady Placer group logging camp & rail spur	2.7	3	A	2	E	a,d
H645-1065	Trash dump	1.6	1	A	5	E	a,d
AH645-1328 or AH645-1328	Homestead/mining	1.13	1	A	2	E	a,d
H645-1334	Cabin/ placer mining	1.8	3	A	2	E	a,d
H645-1342	Mining/ cabin	1.13	1	A	2	E	a,d
H645-1343	Collapsed cabins/ mining	2.10	2	A	3	E	a,d
H645-1345	Sluice box	2.10	2	A	3	E	a,d
H645-1348	Cabin/shaft	2.10	2	A	2	E	a,d
H645-1451	Structure/ placer mining	1.13	1	B	2	E	a,d
H645-1455	Log cabin/ adit	2.10	2	A	2	E	a,d
H645-1459	Mining cabin (part of H645-1327)	1.8	3	A	2	E	a,d

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria
H645-1461	Ore Bucket mine sign & prospects	1.1	1	A	2	E	a
H645-1506	Trash scatter	1.6	1	A	2	E	a,d
H645-1576	Prospect pit/ structural remains	1.8	3	A	2	E	a,d
H645-1578 LC81	Homestead/ adit	2.10	2	A	2	E	a,d
H645-1330 LC119	Ditches & structural remains	1.7	3	B A-U	0 3-U	E	a,d
H645-1331	Strucutre & placer mining	2.10	2	A	3	E	a,d
H645-1539	Lithics & ditch	1.13	1	A	5	E	a,d
H645-1586	Lithics & historic concen.	1.13	1	A	3	E	a,d
H645-0004 GB4	Cabin & shaft/adit	2.10	2	B	3	E	a,c,d
H645-0005 GB5	Cabins	1.7 2.1	3/2	B	3	E	a,c,d

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria
H645-0007 GB7 LC43	Building platform w/ assoc trash scatter	1.7	3	B	0 2-U2	E	a,d
H645-0008 GB8 LC48	Mine	2.10	2	A	0	E	a,d
H645-0009 GB9 LC59	Mine	2.10	2	B	0 4-U	E	a,c,d
H645-0010 GB10 LC67 LC65	Cabin & quartz mining; cabin & ditch-U	2.10 1.1	2/1	B	0	E	a,c,d
H645-0019 LC12 LM1	Homestead assoc. w/ placer mining	1.7 1.1	3	B	0 4-U	E	a,c,d
AH645-0020 LC11 LM2	Cabin, placer & prehistoric artifacts	1.7 1.8 1.1	3	B A-U	0	E	a,d
H645-0031	Ditch, reservoir & diversion channel	1.9	1	A	2 4-U	E	a

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria
H645-0046	Cabin remnants & ditches	1.8	3	A	2-3	E	a,d
H645-0047	Mining/ logging camp	1.8	3	A	2-3 3-4U	E	a,d
H645-0064	Cabin (possible connection w/ Dixie Meadows Mine)	1.7	3	A	2-3	E	a,d
H645-0065	Cabin (possible connection w/ Dixie Meadows Mine)	1.7	3	B	2-3	E	a,d
H645-0067	Structures & shaft	2.10	2	B	4	E	a,c,d
H645-0068	Cabin & adit	1.13	1	B		E	a,c,d
H645-0069 LC12	Cabin (private land)	1.7	3	B	3-4	E	a,c,d
H645-0078 LC45	Homestead with presumed mining ditches	1.8	3	A	0 2-3	E	a,d
H645-0087	Placer & hard rock mining	2.10	2	B	3 2-U	E	a,d
H645-0169	Mine & cabin	2.10	2	B	3	E	a,c,d

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria
H645-0170	Cabin & rock ring	1.7	3	A	2-3	E	a,d
H645-0175	Cabin & mining	1.7	3	A	2	E	a,d
H645-0187	Cabin & mining	2.10	2	B	4	E	a,c,d
H645-0208A LC129	Cabins & sluice box	1.7 1.8	3	B	0 3-U	E	a,c,d
H645-0223	Placer & log cabin	2.10	2	A	2-3	E	a,d
H645-0248 LC127	Mining operations (Chinese)	1.9	1	A	4	E	a,d
IH645-0258	Cairn/post (possible mining)	1.10	1	A		E	a
H645-0310	Refining & processing operations	2.10	2	A	2-3	E	a,d
H645-0311	Cabin (associated with mining)	1.7	3	B	2-3	E	a,d
H645-0312	Mine, structure remains & trash scatter	1.12	1	A	2-3	E	a,d
H645-0315	Shafts & structure	2.3	2	A	3	E	a,d
IH645-0319	Placer mining equipment	1.11	1	A	0	E	a

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria
H645-0322	Chinese mining/ habitation	1.13	1	A	2-3	E	a,d
H645-0328	Chinese trash scatter	1.6	1	A		E	a,d
H645-0351	Woodcutter cabin (Dixie Meadows mine)	1.7	3	A	2-3	E	a,d
H645-0355	Mining habitation	2.10	2	B	4	E	a,c,d
H645-0356	Kight mining tunnels	2.10	2	A	2-3	E	a,d
H645-0358	Mine with associated can scatter	1.13	1	A	2-3	E	a,d
H645-0359	Fireplace with assoc. trash scatter	1.7	3	A		E	a,d
H645-0373	Hydraulic mining & habitation	2.10	2	A	2-3	E	a,d
H645-0414	Cabin & mine	1.8	3	B	2-3	E	a,d
H645-0421	Structural remains & mining	1.3	1	A	2	E	a,d
H645-0464 LC14	Cabin remains & placer tailings	2.10	2	A	2-3	E	a,d

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria
H645-0477	Ditch w/ prehistoric artifacts	1.13	1	A		E	a,d
H645-0511	Railroad Bed	2.7	3	A		E	a
H645-0820	Mining homestead w/ arrastra	1.8	3	A	2	E	a,d
H645-0948	Tailings & ditch	1.13	1	A	3	E	a,d
H645-0951	Statler Mining Complex (Mayflower, Heppner or Statler)	2.10	2	B	3-4	E	a,c,d
H645-0957	Wray Mine	2.10	2	A	3	E	a,d
H645-0968	Possible habitation remains & ditch	1.8	3	A	3	E	a,d
AH645-0997	Possible mining or RR logging irrigation/ RR grade & lithics	1.13	1/3	A	5	E	a,d
H645-1008	Placer mining	1.13	1	A	4-5	E	a,d
H645-1392	Adit 6 A(Crushed cabin site)	1.7	3	A	2	E	a,d

Agency Site #	Description	Site Type	Prop Type	Arch/ Bldg.	Cond	NRHP Eval.	NRHP Criteria
IH645-1553	Artifacts - Chinese (AH645-0020)	1.12	1	A	0	E	a,d
H645-1558	Lost Ditch site	2.10	2	B	4	E	a,c,d

Table 3

Introduction

These are sites that are considered eligible for nomination to the NRHP as a first step. Secondly, the condition of the site ranges from Excellent (1 in the tables) to Good (2 in the tables). These sites follow the recommendations for generally eligible sites in the Management Plan. Recommended efforts for these sites include passive preservation (monitoring) and periodic photo-documentation of the sites. If the sites show evidence of deterioration or vandalism active treatments may need to be undertaken such as ulta-intensive surface recording or excavation. Equally, if these sites face destruction from development, further treatments will need to be pursued.

MINING RELATED SITES

Sites which exhibit historically important engineering features or industrial processes

Justification: These sites may provide important information about the technology and operation of mining in the Study Area. National Register Criterion a: mining sites are associated with a broad pattern of history; Criterion d: mining sites that are likely to yield information important in history. National Register eligibility is used here as a management tool to identify a sample of mining sites which are appropriate for preservation or data recovery. Sites in this category will be studied through both archival and field research and appear to represent particular aspects of the mining phenomenon, such as ethnicity, economic base, new technological innovations or success or failure of the mining operation. These sites retain basic architectural or archaeological integrity and, if archaeological, contain sufficient surface and subsurface remains to represent the human activities and material culture of the site buildings or occupants.

Using Tables 1 and 2, these sites would include evaluation under Property Type 1 or 2 (Mine Exploration or Development (Beneficiation) and would have a condition of Excellent (1) or Good (2).

Site #	Description	Property Type	Arch/Bldg.	Condition	NRHP Criteria
8S33E-9/2 DA41	Welch Creek Mine and Cabin	2	Arch.	2	a,d
8S35E-31/01	Goldbug Mine	2	Arch.	2	a,d
9S35E-8/2	Trash Scatter	1	Arch.	2	a,d

Site #	Description	Property Type	Arch/Bldg.	Condition	NRHP Criteria
9S35E-10/6	Mine	2	Building	2	a,d
9S35E-16/1 DA95	Ruby Bend	2	Arch.	2-3	a,d
9S35E-21/3	Trash dump	1	Arch.	2	a,d
9S35E-22/6	Adit mine and structure	2	Arch.	2-3	a,d
9S35E-22/7	3 Structures, ditch, adit, tailings and trash	2	Arch.	2	a,d
9S35W-23/3	Stamp mill & habitation	2	Arch.	2	a,d
9S35E-23/4	Stamp mill & trash	2	Arch.	2	a,d
9S35E-28/7	Trash Scatter	1	Arch.	2	a,d
10S35E-3/2	Mining Settlement/ Homestead	1	Arch.	2	a,d
MALHEUR NATIONAL FOREST LONG CREEK RANGER DISTRICT					
H645-1210	Trash dump	1	Arch.	2	a,d
H645-1212	Shaft & cabin	2	Arch.	2	a,b,c,d
H645-1489	Adits & structure	2	Arch.	2	a,d
H645-1498	Gem Quartz mill	2	Arch.	2	a,d

Site #	Description	Property Type	Arch/Bldg.	Condition	NRHP Criteria
H645-0305 ✓	Hydraulic mining/cabins	2	Arch./Build	2-3	a,c,d
H645-0377 ✓	Forgotten Mine	2	Arch.	2-3	a,d
AH645-1328 ✓	Homestead/ Mine	1	Arch.	2	a,d
H645-1342 ✓	Mining/cabin	1	Arch.	2	a,d
H645-1348 ✓	Cabin/shaft	2	Arch.	2	a,d
H645-1451 ✓	Structure/ placer mine	1	Building	2	a,d
H645-1455 ✓	Log cabin/adit	2	Arch.	2	a,d
H645-1461 ✓	Ore Bucket mine & prospects	1	Arch.	2	a
H645-1506 ✓	Trash scatter	1	Arch.	2	a,d
H645-1578 ✓ LC81	Homestead/ adit	2	Arch.	2	a,d
H645-0031 ✓	Ditch, reservoir and diversion channel	1	Arch	2	a
H645-0223 ✓	Placer & log cabin	2	Arch	2-3	a,d
H645-0310 ✓	Refining & processing	2	Arch.	2-3	a,d
EH645-0312 ✓	Mine, structure remains and trash scatter	1	Arch.	2-3	a,d

Site #	Description	Property Type	Arch/Bldg.	Condition	NRHP Criteria
H645-0322	Chinese mining/habitation	1	Arch.	2-3	a,d
H645-0356	Kight Mining tunnels	2	Arch.	2-3	a,d
H645-0358	Mine with associated can scatter	1	Arch.	2-3	a,d
H645-0373	Hydraulic mining and habitation	2	Arch.	2-3	a,d
H645-0421	Structural remains and mining	1	Arch.	2	a,d
H645-0464 LC14	Cabin remains & placer tailings	2	Arch.	2-3	a,d

Site #	Description	Property Type	Arch/ Bldg	Condition	NRHP Criteria
9S35E-33/5	Baum Cabin Complex	3	B	2-3	a,d
9S35E-33/7	Mining settlement/ mining	3	A	2	a,d
9S35.5E-4/3	Structure/ trash scatter	3	B	2	a,d
10S35E-4/2	Mining settlement/ homestead	3	A	2	a,d
10S35E-4/3	Structures/ trash	3	A	2-3	a,d
MALHEUR NATIONAL FOREST LONG CREEK RANGER DISTRICT					
H645-0095 √	Treasure Hills Placer Claim	3	A	2-3	a,d
H645-1484 √	Mining Camp	3	A	2	a,d
H645-1487 √	Miner's Cabin	3	A	2	a,d
H645-0866 √	Lady Placer Group	3	A	2	a,d
H645-1334 √	Cabin/placer miing	3	A	2	a,d
H645-1459 √	Cabin	3	A	2	a,d
H645-1576 √	Prospect pit/structural remains	3	a	2	a,d

Agency Site #	Description	Site Type	Prop. Type	Arch/ Bldg.	Cond.	NRHP Evaluation	NR Crit
9S35E-22/3 DA97	Clear Creek strip mine	2.0/1.1	2	A/B	0	E	a,c,d
9S35E-28/2 DA101	Cabin mine	1.8/2.1	3/2	B	0	E	a,c,d
9S35E-28/DA102	Lightning Creek placers	2.1	2	B/A	0	E	a,d
10S34E-1/1 DA109	Morris mine	2.1	2	B	0	E	a,c,d
10S34E2/2 DA110	Tiger Mine	2.7	3	A	0	E	a
10S34E-3/2 DA112	Mine	2.0	2	A	0	E	a
10S343-4/1 DA114	Mine shaft	2.2	2	A	0	E	a
10S34E-4/2 DA115	Cabin & ditch	1.8	3	B	0	E	a,c,d
10S34E-22/1	Lemmon/ Cabins	1.7	3	B	0	E	a,c,d
10S35E-7/2 DA119	Mine & 5 cabins	2.13	2	B	0	E	a,c,d
10S35E-8/1 DA120	Prospect	1.1	1	A	0	E	a
MALHEUR NATIONAL FOREST LONG CREEK RANGER DISTRICT							

Agency Site #	Description	Site Type	Prop. Type	Arch/ Bldg.	Cond.	NRHP Evaluation	N Cri
H645-0066 H645-1434	Cabins, ditch & placer tailings	1.8	3	B	0	E	a,c,d
H645-0068	Adits & structures	1.7/2.1	3/2	B	0	E	a,d
H645-0070	Other exploratory	1.13/2.1	2/1	B	0	E	a,c,d
H645-0079	Building Platform	1.7	3	A	0	E	a,d
H645-0092	Susanville Mining District	2.10	2	A	0	E	a,b,c,d
H645-1443 LC17	Wild Man Site	2.4/2.1	2	A	0	E	a,d
H645-0308	Other exploratory site	1.13	1	A	0	E	a,d
H645-0314	Steam Bonkey sled site	2.10	2	A	0	E	a,d
H645-1330 LC119	Ditches & structural remains	1.7	3	B/A	0	E	a,d
H645-0007 GB7 LC43	Buidling platform with trash scatter	1.7	3	B	0	E	a,d
H645-0008 GB8 LC48	Mine	2.10	2	A	0	E	a,d
H645-0009 GB9 LC59	Mine	2.10	2	B	0	E	a,c,d

Agency Site #	Description	Site Type	Prop. Type	Arch/ Bldg.	Cond.	NRHP Evaluation	NI Crit
H645-0010 GB10 LC67 LC65	Cabin & quartz mining	2.1/1.1	2/1	B	0	E	a,c,d
H645-0019 LC12 LM1	Homestead W/ placer	1.7/1.1	3	B	0	E	a,c,d
AH645-0020 LC11 LM2	Cabin, placer & prehistoric artifacts	1.7/1.8/ 1.1	3	B/A	0	E	a,d
H645-0078 LC45	Homestead w/ mining ditches	1.8	3	A	0	E	a,d
H645-0208A LC129	Cabins & sluice box	1.7/1.8	3	B	0	E	a,c,d
IH645-0319	Placer mining equipment	1.11	1	A	0	E	a
H645-0328	Chinese trash scatter	1.6	1	A	0	E	a,d
H645-0359	Fireplace with trash scatter	1.7	3	A	0	E	a,d
H645-0477	Ditch with prehistoric artifacts	1.13	1	A	0	E	a,d
H645-0511	Railroad bed	2.7	3	A	0	E	a
IH645-1553	Artifacts-Chinese	1.12	1	A	0	E	a,d

Eligible sites with condition codes of 3, 4 or 5 are considered low priority sites.

Appendix II

Recommendations and Procedures for Historic Resources Survey

Standards for Investigations: Theoretical and Substantive Importance and Guidance for Historic Properties

Methods and procedures for historic property identification, recordation and assessment are important management goals. Documentary/archival research, project oriented survey, recordation of historic sites, artifact collection and curation are discussed in this section. The problem domains that guide all aspects of data gathering are detailed in Section 4.

Future cultural resource activities for the Study Area, including research and field operations, include 8 standards to assure completeness. All procedures must be consistent with "Archaeology and Historic Preservation: Secretary of Interior's Standards and Guidelines" and Oregon SHPO policies.

These standards include:

- background research
- sample inventory
- use of predictive model for determination of site location
- intensive inventory
- site significance evaluation
- excavation
- analysis and reporting
- curation

Background Research

Background research may include documentary and archival research. Document research involves published or unpublished theses, articles, books and similar materials. These sources are referred to by historians as secondary sources.

Archival or primary source research involves using manuscript collections, government documents and other uninterpreted sources or archives.

Known as Class I investigation, background research is a mandatory precursor to archaeological or historical field work or study. This document will provide the primary reference for future investigations. However, due to the changing nature of archaeological, historical and historic archaeological studies, additional, supplemental sources should be consulted. Generally, a Class I investigation begins with the U.S.F.S. files and Oregon State Historic Preservation Office files that document cultural resources within the state. Known as a site file search, the results are designed to indicate previously documented cultural resources within the proposed survey area and/or of interest because of the nature of the project. The information provided by a Class I survey includes listings of resources, their NRHP eligibility recommendations and the name of the recorder. Additional information may be necessary from the Forest staff. Information on land holding patterns prior to federal involvement may be obtained in the Forest land files and from

the Bureau of Land Management. The National Archives retains land entry and patent proof documentation.

From a list of possible sources, the actual research work begins. Researchers may take notes on 3" x 5" cards or other appropriate media and the data then be transferred to computerized databases (if necessary) to support and analyze the complementary data recovered during the field inventory.

The archival task should be accompanied by questioning of the source; is it reliable, can it be corroborated by other sources and what are its biases? The second principle is to have the researchers always searching for another piece of evidence and from those small blocks, build a history in as judicious and unbiased a way as possible. Every effort should be made to assure that the notes and other materials will be compiled to meet the highest professionals standards as explained in such works as The Modern Researcher (Barzun and Graff, 1977).

Another component of the historic research process is oral history. As a part of the overall data gathering phase of the project, it may be complementary to the documentary/archival research. Interviews should be conducted to accepted professional standards such as those in Dunway and Baum (1984). Those standards include a variety of concerns, such as taping the interview on cassette recorders; use of a familiar setting to the interviewee for the actual session; transcription of the taped interview; the use of other sources for substantiation of the interview's content; and using the interview as an information gathering session, not as a cross-examination of the subject. The interviewer should conduct pre-interview meetings or conversations with the subject to allay fears about tape recording and to establish other ground rules. If the subject seeks to place too may restrictions, either on the content or use of the interview material, such restrictions should be noted and taken into consideration for potential biases during evaluation of the interview content. A standard release and deed to the interview should be obtained by the oral interviewer.

Pedestrian Inventory and Recordation Procedures

Field and laboratory methods are primarily oriented around the systematic identification, recordation, and evaluation of archaeological manifestations within the Study Area. Evaluation is primarily for the purposes of establishing National Register eligibility based on the contexts presented above and for management purposes.

In most areas the survey will be performed by crews walking parallel transects with maximum spacing of approximately 30 meters. As each transect progresses the person on the end flags the route so that it can be followed on the return to ensure complete coverage. In some areas, where slopes approach or exceeded 50%, the spacing may be increased to 40-45 meters, and the area walked parallel to the slope contour. Because of the presence of small mining features even on steep hillsides, slopes of as much as 90-100% may have to be covered in some instances. Many of these can, however, be examined for historic materials through spot checking or by observation from vantage points across drainages. A few small areas may be avoided due to safety concerns.

These would mainly be large areas of loose talus on steep (>40%) slopes. Initial attempts to cover such features on previous surveys have nearly resulted in injuries and they can be examined more prudently from the outside. Such talus slopes have been found to contain some prehistoric features.

When cultural resources are encountered they are marked with pinflags and plotted on the project maps. The area is then walked in a series of parallel or ziz-zag transects by two or more members of the field crew, depending on the size of the site. These transects are at a spacing of 10 meters or less and are intended to establish the nature of the site and approximate boundaries. All cultural materials and features encountered will be flagged at this time. In some areas where cultural material is suspected and ground visibility is extremely low due to leaf litter or duff, it may be necessary to make provisions to scrape away small areas at regular intervals to examine the actual ground surface for cultural material. This might be accomplished using small rakes or brushes. Alternately, metal detectors may be utilized to examine such areas on a historic site. If the resource is an isolated find (IF) it will generally be recorded on the spot using the appropriate Isolated Find Form. If it is a site it will be numbered and plotted on maps for the follow-up recording crew. Isolated prospect pits, cairns and claim marker cairns are recorded as isolates at the time of their location. Size and other characteristics are recorded and the item is plotted on the project maps. They will be reported in tabular form.

During recording the site area is again carefully walked over again and all features and cultural items identified, flagged, and numbered. The site is mapped using compass and measuring tapes or pace techniques or, if considered necessary, using a total station. When possible it is mapped directly onto copies of base maps provided by the client. Constructed historic features such as structures, equipment, dimensioned lumber, and historic artifacts will be given in feet and inches. Landscape features and overall site measurements will be in metric units for both prehistoric and historic sites. This is to simplify overall mapping.

A site datum will be established. This will consist of a rebar with metal identification tags, set in a permanent position within or immediately adjacent to the site. This datum will be included on the site maps and mapping will be in relation to this point. If needed, secondary mapping datums will be established and marked. No datum will be placed on isolated finds.

Site boundaries will be established based on factors such as absence of cultural material or significant declines in density, natural topographic features, disturbance, historical boundaries, or a property type model. The boundaries will be flagged to help in recording.

Photography includes site overviews, features and feature systems and selected individual artifacts. Photos are taken in both black and white and on color transparencies. The latter is mainly used as a backup for the black and white photographs. Diagnostic prehistoric artifacts are described, photographed, and sketched. Historic diagnostics are generally not drawn or photographed unless they are unusual or where a drawing or photo is needed for identification. Makers marks, ceramic patterns etc. are drawn.

Surface collection will be limited to very unusual items or those which need laboratory examination for identification or analysis. Collected items will be mapped. They will be field labeled on the collection bag and returned to the laboratory for processing, analysis, and curation. Curation will be at an agency approved Oregon facility.

Any subsurface probing will be performed in consultation with the Forest Archaeologist and at the discretion of the field supervisor, in order to establish eligibility under Criterion d. This probing will occur in areas such as trash middens, areas in and around historic structures, or in places where buried cultural material might be expected on geomorphological grounds. Some probing may be required in areas where geomorphic evidence suggests the possibility of buried cultural material, even though no surface evidence was noted. This might include areas around springs or on some stream terraces. The subsurface probing will normally be in the form of small (50 x 50 cm) units or 30 cm diameter shovel probes, depending on the circumstances. In consultation with Agency Archaeologists a few areas may be tested using a backhoe. These would be areas in which the small units would not be sufficient to test for deeply buried materials or examine stratigraphy. These include areas where mill tailings may have buried earlier materials or where such tailings are suspected to be found and some of the terraces potentially have more than a meter of deposition.

Laboratory methods are primarily oriented around the production of the final report. The field documentation will returned to the lab and checked, photographs processed and prepared, and data tabulations performed. Makers marks and other diagnostics recorded in the field will checked and identified. All collected artifacts will be examined, identified, and prepared for curation. Site data will be tabulated and checked and final site forms produced. Site maps will be drafted and all final site locations plotted on U.S.G.S. 7.5' Quadrangles and other appropriate maps.

Sample Survey

A sample survey is often used to determine the potential for site probability within a certain area. Another type of sample survey is the reconnaissance survey. This survey methodology involves cursory review of an area to determine the potential or apparent potential for locating above surface cultural resources.

Intensive Survey

Intensive Survey is designed to provide systematic, extensive field examination of a predetermined geographical area. Field and laboratory methods are primarily oriented around the systematic identification, recordation, and evaluation of all archaeological manifestations within the survey area. Evaluation is primarily for the purposes of establishing National Register eligibility based on the contexts presented above.

Excavation

Excavation is an extreme and destructive form of mitigation. Excavation is designed to gather data from subsurface deposits of cultural resources that provide information pertinent to the research questions. Prior to beginning any excavation, a Data Recovery Plan (DRP) or Treatment Plan (TP) delineating goals and methods of information retrieval should be formulated. The Plan should indicate the methods to be followed during excavation, including the extent of excavation. Determinations of complete excavation or sampling need to be made. In addition, certain blocks or areas of concentrated cultural remains may be the only areas of excavation. By defining and determining the level of excavation, the Plan focuses efforts to a concerted goal.

Excavation methods vary. However, the excavation effort must follow standard methodological and theoretical procedures. These may include:

- horizontal and vertical control
- screening of excavated matrix
- standard level and feature forms; excavation unit notes; field notes; supervisory comments and notes
- field specimen logs for excavated materials
- plan and profile drawings
- photographing of features, profiles, field procedures
- bagging and identification of artifacts and field specimens
- intensive and extensive mapping
- soils sampling for fine screening
- sample analyses

In addition to standard excavation and analysis, specialized sampling may be appropriate. Consultation between Forest Staff, SHPO and ACHP may determine the need for specialized sampling. This may include:

- radiocarbon sampling and testing
- dendrochronological sampling and testing
- pollen sampling and testing
- flotation sampling and testing
- gastropod sampling and testing
- phytolith sampling and testing
- geomorphological analysis

Analysis and Reporting

Reports must meet the standards established by the Oregon SHPO and those of the Secretary of the Interior, "Archaeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines," and 36CFR66, "Recovery of Scientific, Prehistoric, Historic, and Archaeological Data and Methods, Standards, and Reporting Guidelines."

Maps

All reports will be accompanied by 1:250,000 or 1:100,000 scale maps or other suitable substitutions showing the Study Area boundaries and 7.5' or 15' USGS maps on which the boundaries, area of potential effect, area inventories, land status (forest and non-forest lands) and cultural resource locations are plotted as accurately as possible. Maps will be prepared so that they are fully comprehensible without reference to the text. Particular attention will be paid to the following:

1) use of clean, original maps submitted in the unbound report copy. Maps in the bound report will be clean copies of the original maps. Efforts will be made to make all locational data compatible with GIS systems.
2) photocopies will be of good quality and easy to read.
3) Site and feature boundaries, archaeological properties (by site number), and other significant features will be clearly labeled. If necessary, these elements will be inked or otherwise highlighted to make them legible on photocopies. Keys to all symbols used will appear on all maps.
4) Maps will be trimmed to page size and bound in the report whenever possible. Oversize maps will be in map pockets at the back of the report.